

# PRODUCT SPECIFICATION

DATE: 11/27/2006

<b>cosmo</b> ELECTRONICS CORPORATION	H.P LED : <b>KLS06WWX3</b>	NO. 61L70034	REV.
		SHEET 1 OF 6	1

## 1. Features

**Cosmo's high power LED packages** can handle up to 350-500mA DC current,. These packages are formed by bonding 2~4 pcs LED chips on aΦ20mm metal PCB. The main features of these packages are as follows :

- Very high flux output per LED.
- Flat PCB package. On each PCB, the quantity of LED being adjustable from 2 to 4 to meet user's need. These LEDs being connected in series.
- Very long operation life time up to 100k hours attainable, by using a proper heat sink.
- $120\pm 10^\circ$  cool beam in most packages.

## 2. Applications

- Outdoor and indoor architectural lighting
- Reading light (car/bus/aircraft)
- Decorative/entertainment lighting
- Bollards/Security/Garden lighting
- Traffic signal
- Portable lighting (flashlight/bicycle)
- Edge-lit signs (exit sign/point of sales)
- LCD backlights
- Light guide

## 3. Operation and Storage Temperature

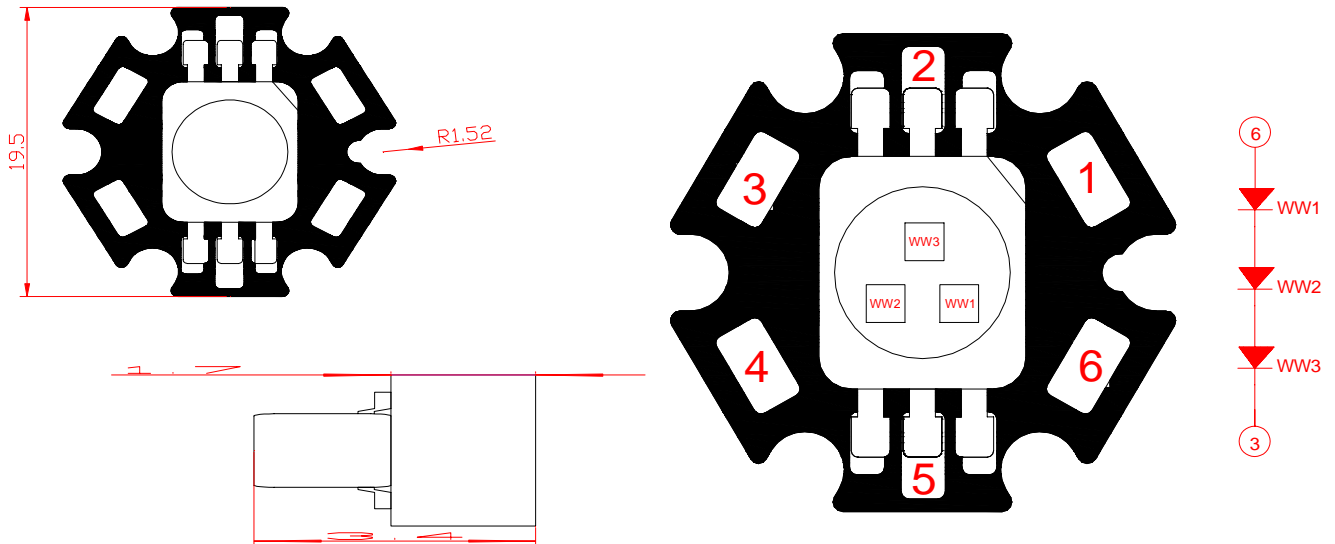
Parameter	Symbol	Value	Unit
Operation temperature	Topr	(Data to be ready, -30~+85)	°C
Storage temperature	Tstg	(Data to be ready, -40~+110)	°C

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## 4. Dimensions



Unit = mm ; Tolerances  $\pm 1$ mm

## 5. Electrical & Optical Characteristics

LED at 350mA (1 chip / W),  $T_a = 25^\circ\text{C}$

Chip quantity : 3 LEDs/PCB

Part Number	CCT (K)	Forward Voltage (Vf)		Luminous Flux (lm)		Wattage Max. (W)	View angle ( $2\theta_{\frac{1}{2}}$ )
		Typ.	Max	Min	Typ.		
WWX3	2500~3500	10.8	12	70	80	4.2	$120 \pm 10^\circ$

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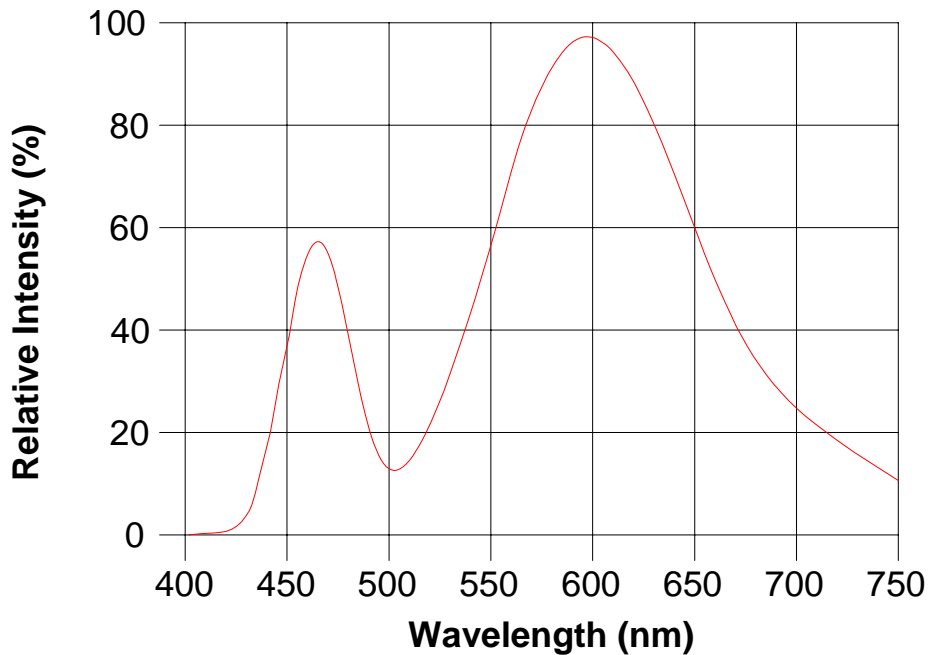
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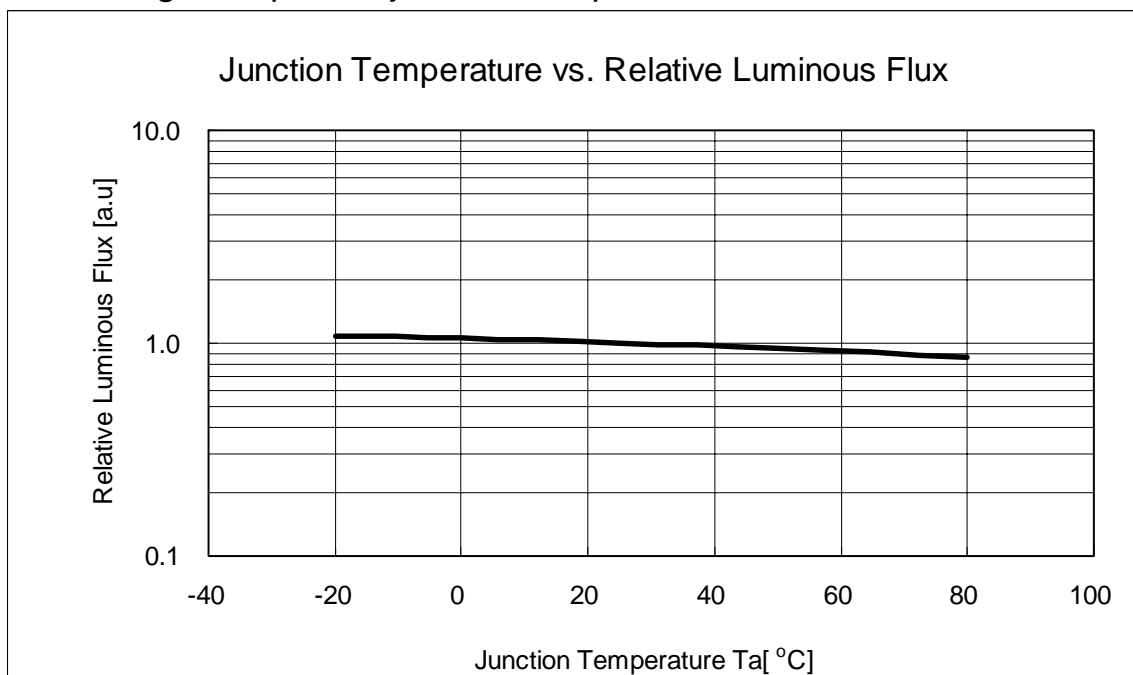
## 6. Wavelength Characteristics

- Relative spectral power intensity of white vs. wavelength ( $T_a=25^\circ\text{C}$ )



## 7. Light Output Characteristics

- Relative light output vs. junction temperature



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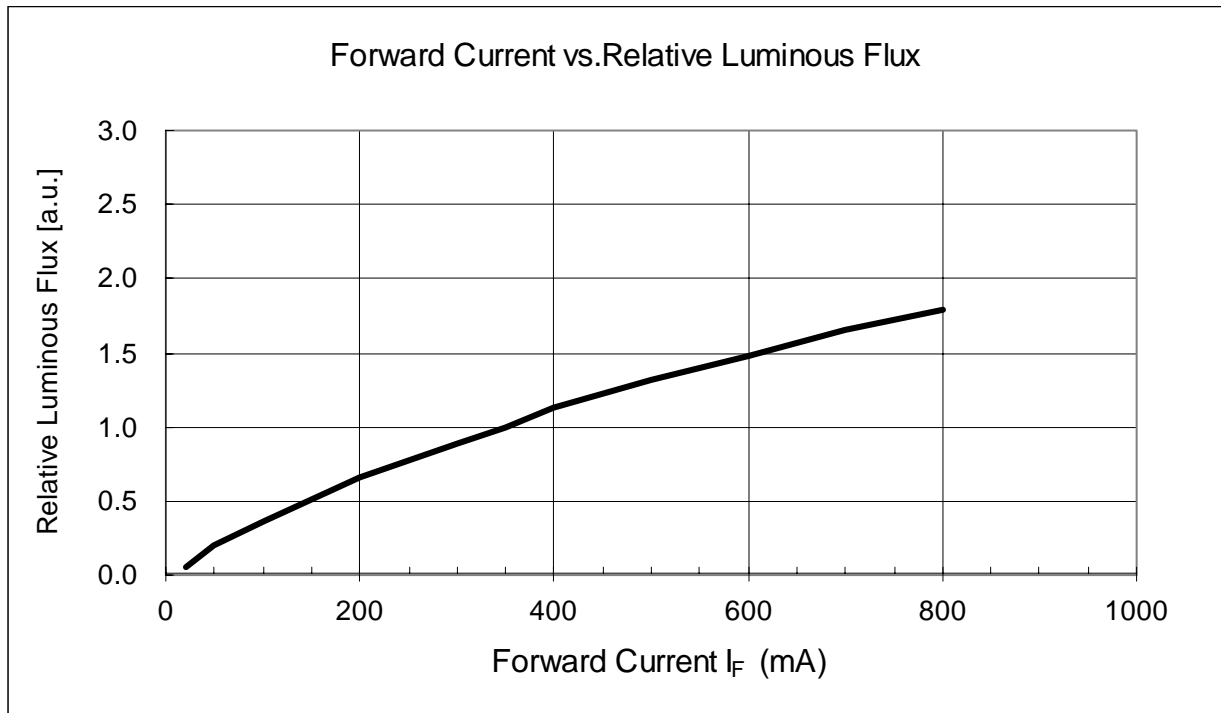
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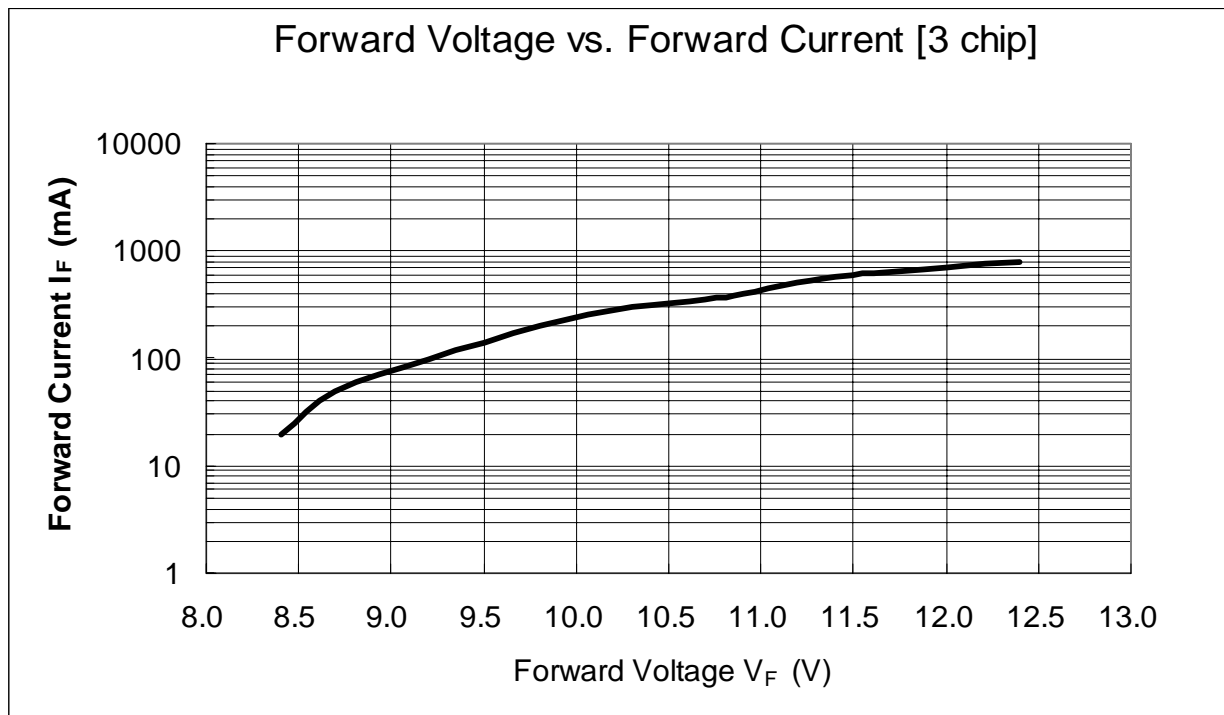
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## 8. Spatial Radiation Pattern

Forward current vs. relative luminous flux ( $T_a=25^\circ\text{C}$ )



- Forward voltage vs. forward current (3 LEDs/PCB,  $T_a=25^\circ\text{C}$ )



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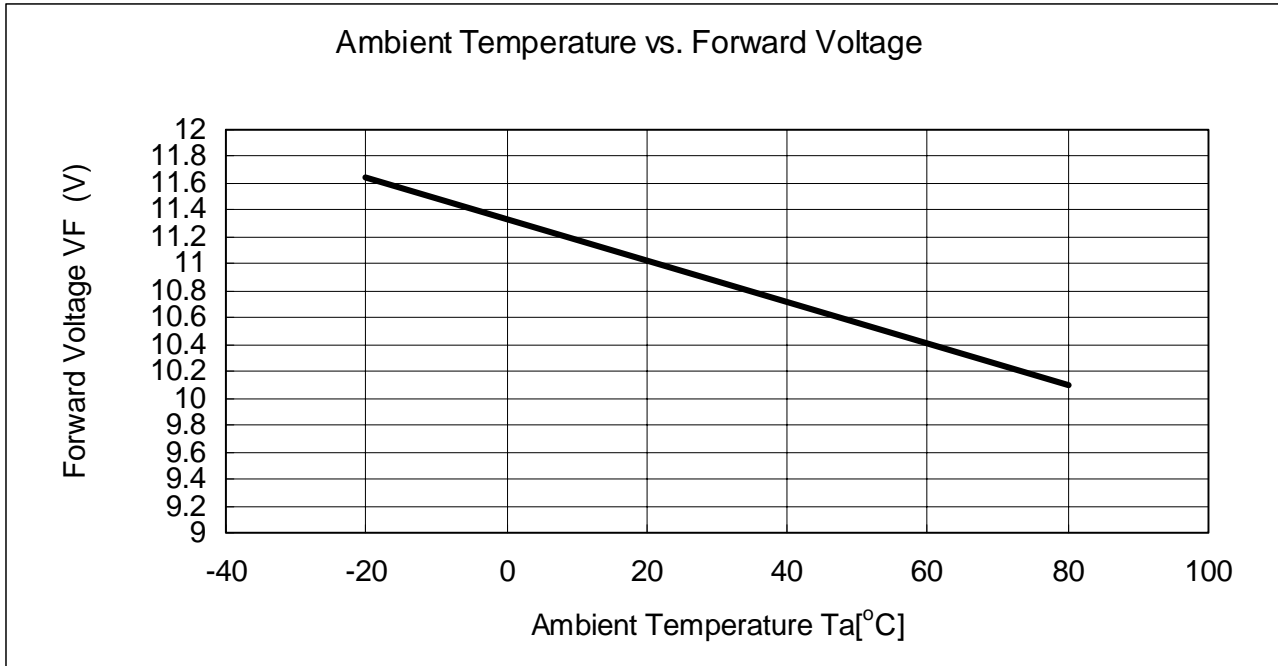
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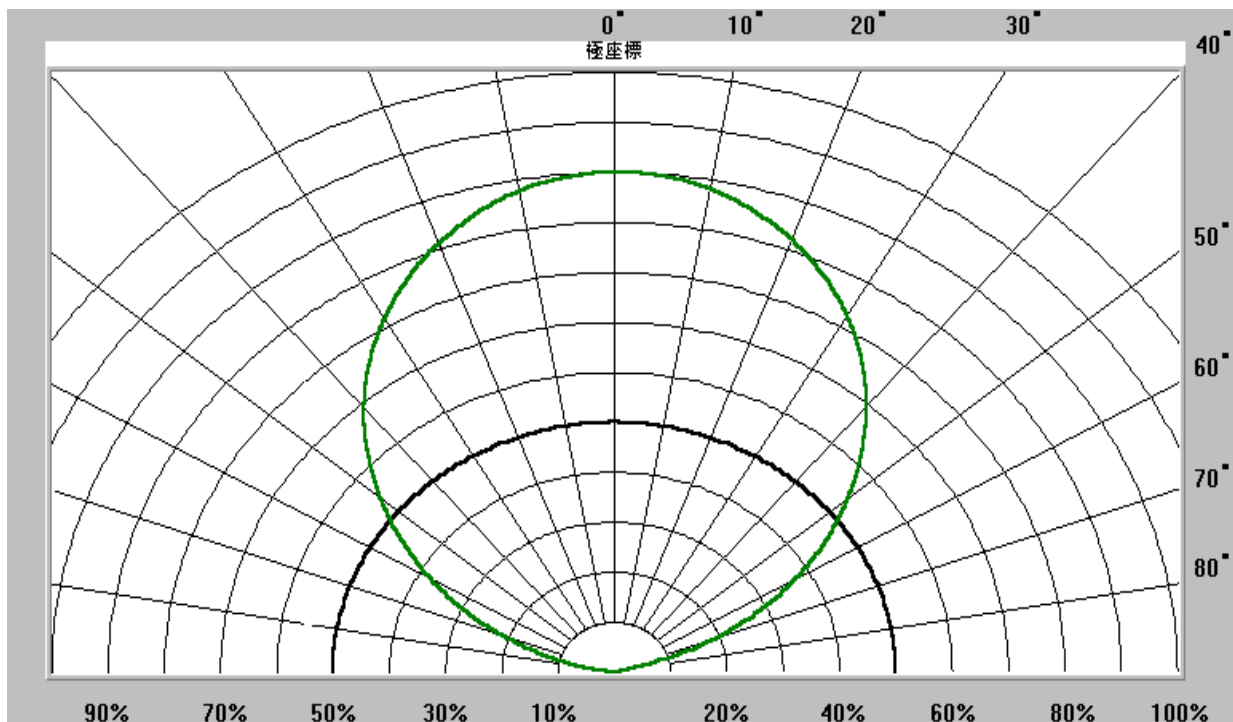
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- Forward voltage vs. ambient temperature (3 LEDs/PCB,  $I_F=350\text{mA}$ )



## 9. Spatial Radiation Pattern

- White



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## 10. Reliability Test

Stress Test	Stress Conditions	Stress Duration	Failure Criteria	Failure rate
1.High temperature operation life	85 °C at 350mA	1,000 hrs	(1) $I_v < 50\%$ degradation (2) $V_f \text{ max} = 110\%$ initial	0/12
2.Room temperature operation life	25 °C at 350 mA	1,000 hrs		0/12
3. Low temperature operation life	-40 °C at 350 mA	1,000 hrs		0/12
4. Wet high temperature operation life	85 °C / 60% RH at 350 mA	1,000 hrs		0/12
5.Powered temperature cycle	(1.)-45°C/18min at 350 mA (2.)Transform /42min (3.)85 °C /18min at 350 mA	200 cycles		0/12
6.Temperature Cycle	(1.)-45 °C /30 min (2.)25 °C /5 min (3.)120 °C /30 min (4.)25 °C /5 min	200 cycles		0/12
7.High temperature storage	110 °C	1,000 hrs		0/12
8. Low temperature storage	-40 °C	1,000 hrs		0/12
9.High temperature humidity storage	60 °C / 90% RH	1,000 hrs		0/12
10.Thermal shock	(1.)-40 °C /20min (2.)Transform /20sec (3.)110 °C /20min	200 cycles		0/12