

# PRODUCT SPECIFICATION

DATE: 11/27/2006

<b>cosmo</b> ELECTRONICS CORPORATION	H.P LED : <b>KLH06RGB3</b>	NO. 61L70022	REV.
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## 1. Features

**Cosmo's high power LED packages** can handle up to 350-500mA DC current, and available in 625nm, 525nm, and 470nm wavelength in mono or multiple colors. These packages are formed by bonding 3 pcs LED chips on a 20mmx20mm metal PCB. A heat sink is mechanically screwed to the board to cool down metal surface temperature below 70°C. 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 1 to 3 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

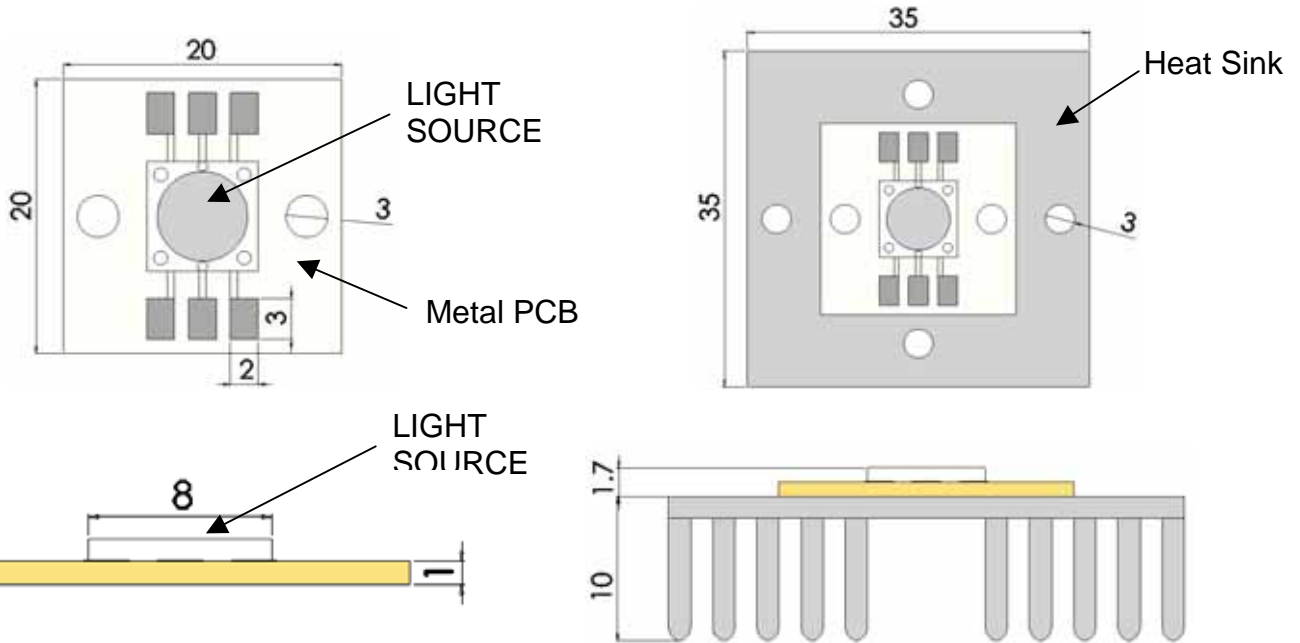
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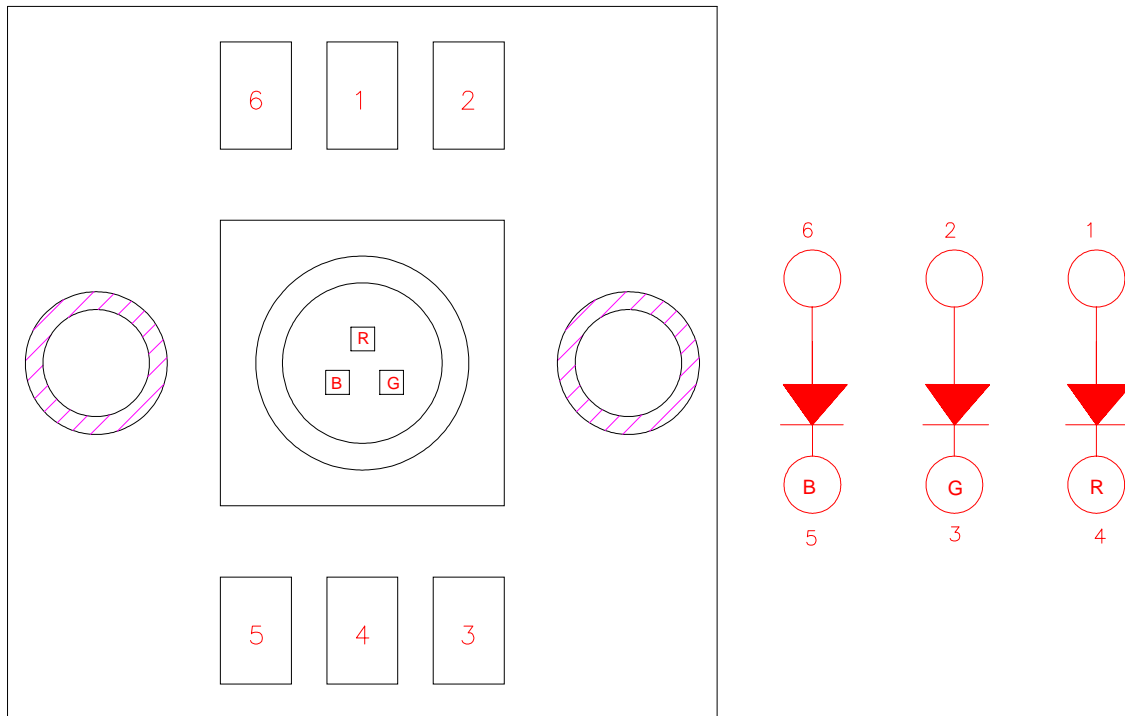
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## 4. Dimensions

●35(L)x35(W)x12(H)mm



Unit = mm ; Tolerances ±1mm



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## 5. Electrical & Optical Characteristics

At Ta = 25°C

Parameter	Symbol	PART NO	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity	Iv	KLH06RGB3	20	25	-	Lm	IF = 350mA Note 1
			40	45	-		
			5	10	-		
Viewing Angle	2 1/2	Ultra Red/ Blue/Green	-	120	-	deg	Note 2
Dominant Wavelength	λd	Ultra Red	-	624	-	nm	IF = 350mA Note 3
		Green	-	525	-		
		Blue	-	468	-		
Spectral Line Half-Width		Ultra Red	-	20	-	nm	-
		Green	-	35	-		
		Blue	-	30	-		
Forward Voltage	VF	Ultra Red	-	2.2	2.6	V	IF = 350mA
		Green	-	3.5	4.2		
		Blue	-	3.5	4.2		
Reverse Current	Ir	Ultra Red/ Blue/Green	-	-	100	μ A	VR = 5V

Note :

- Luminous intensity is measured with a photo detector and filter combination that follows the CIE etc - response curve. And the equipment measured luminous intensity tolerance is ±5%.
- θ1/2 is the off - axis angle at which the luminous intensity is half the axial luminous intensity.
- The dominant wavelength, λd is derived from the CIE chromaticity diagram and represents the color of the device.
- Caution in ESD:  
Static Electricity maybe cause damages to the LED. It is recommend to use a wrist band or anti - electrostatic glove when handing the LED.

All devices, equipment and machinery must be properly grounded.

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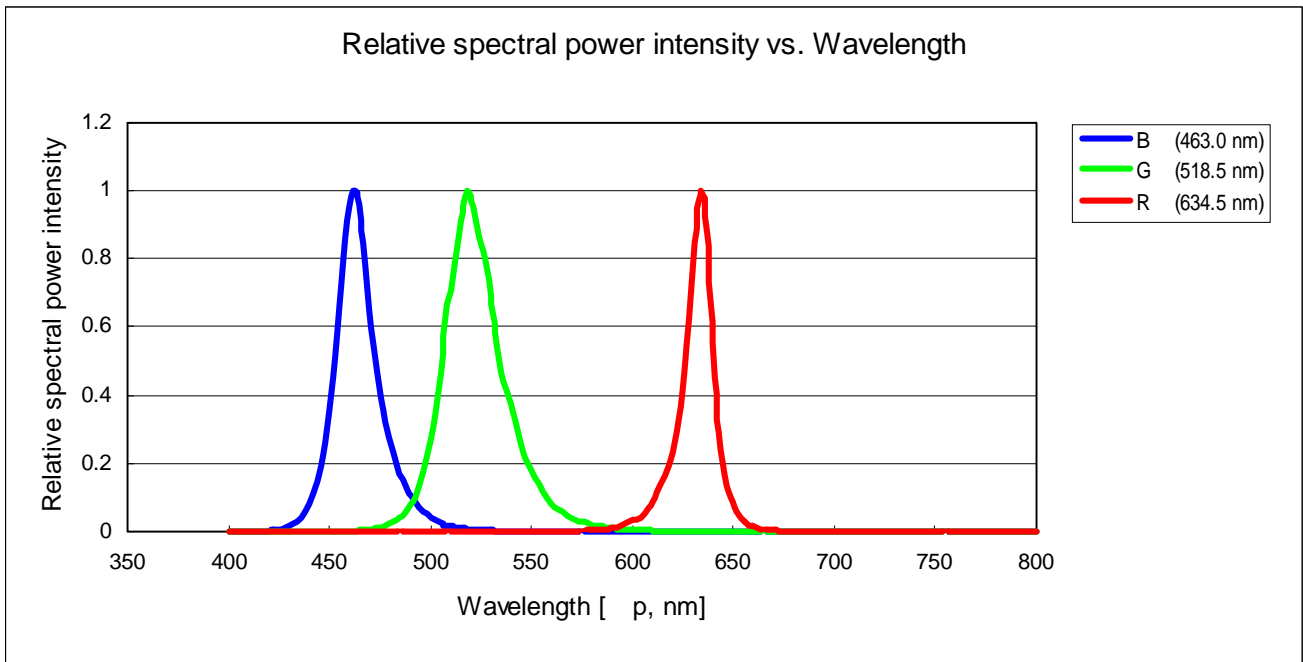
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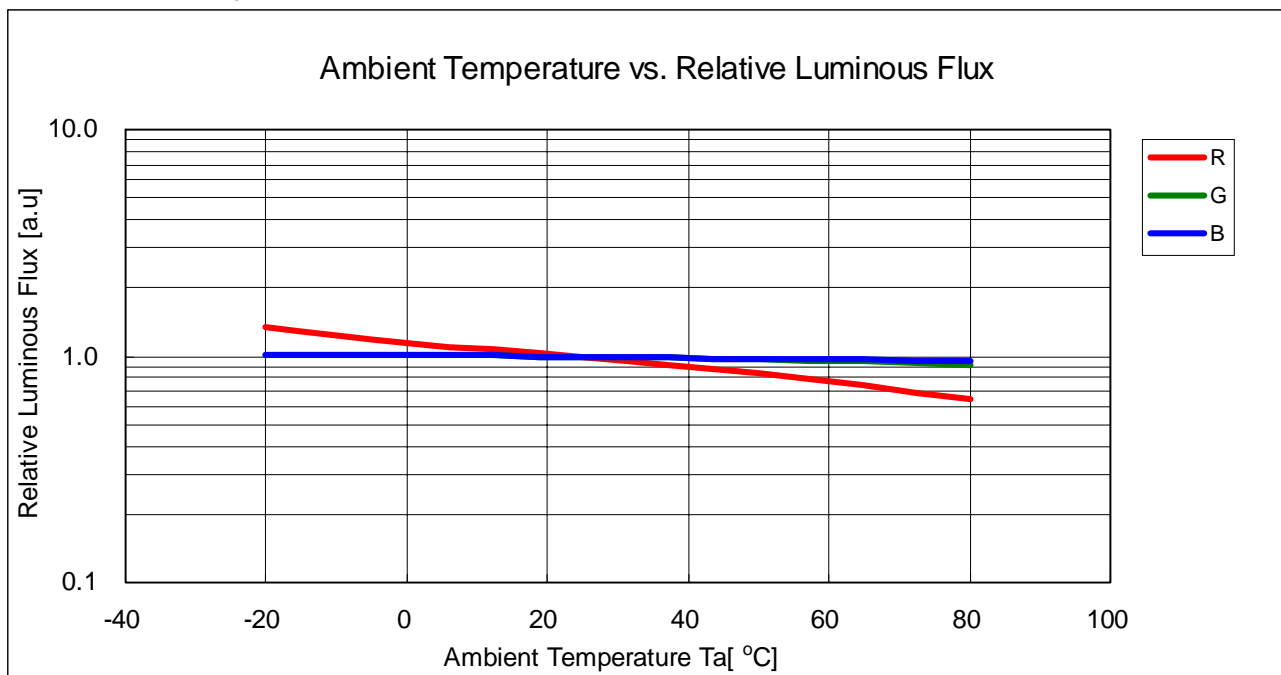
## 6. Wavelength Characteristics

- 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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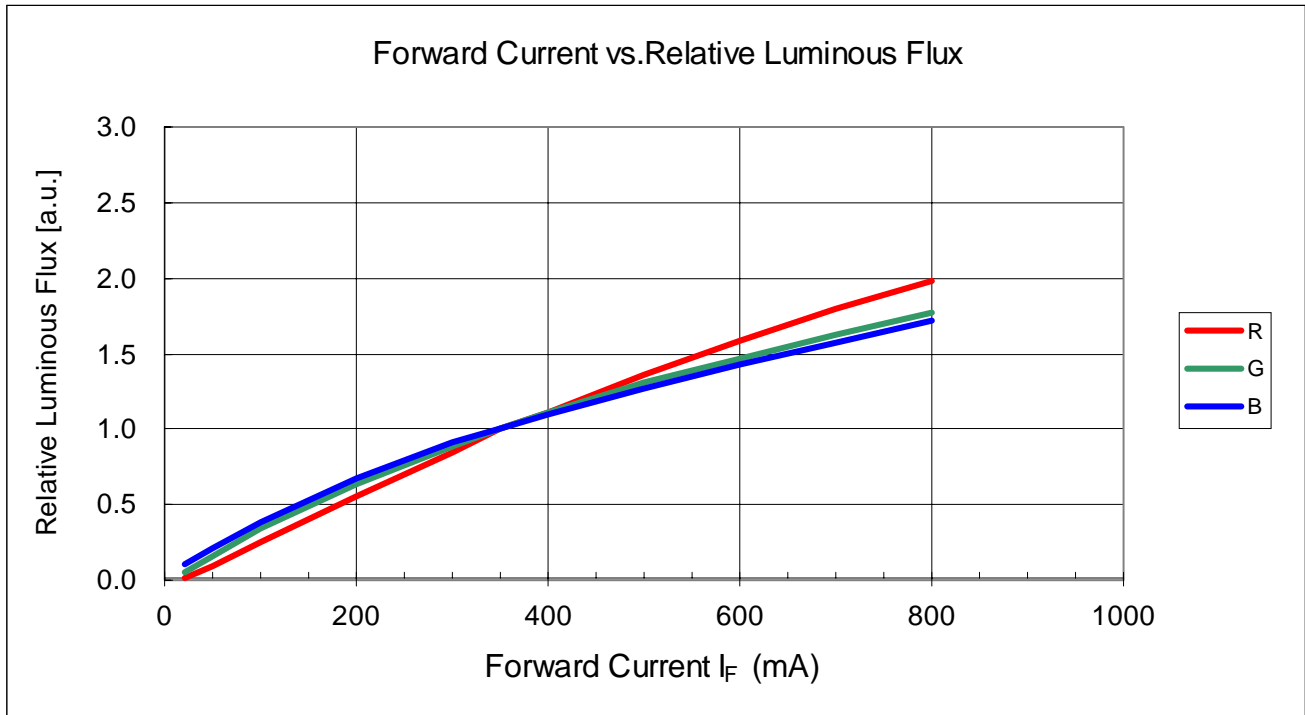
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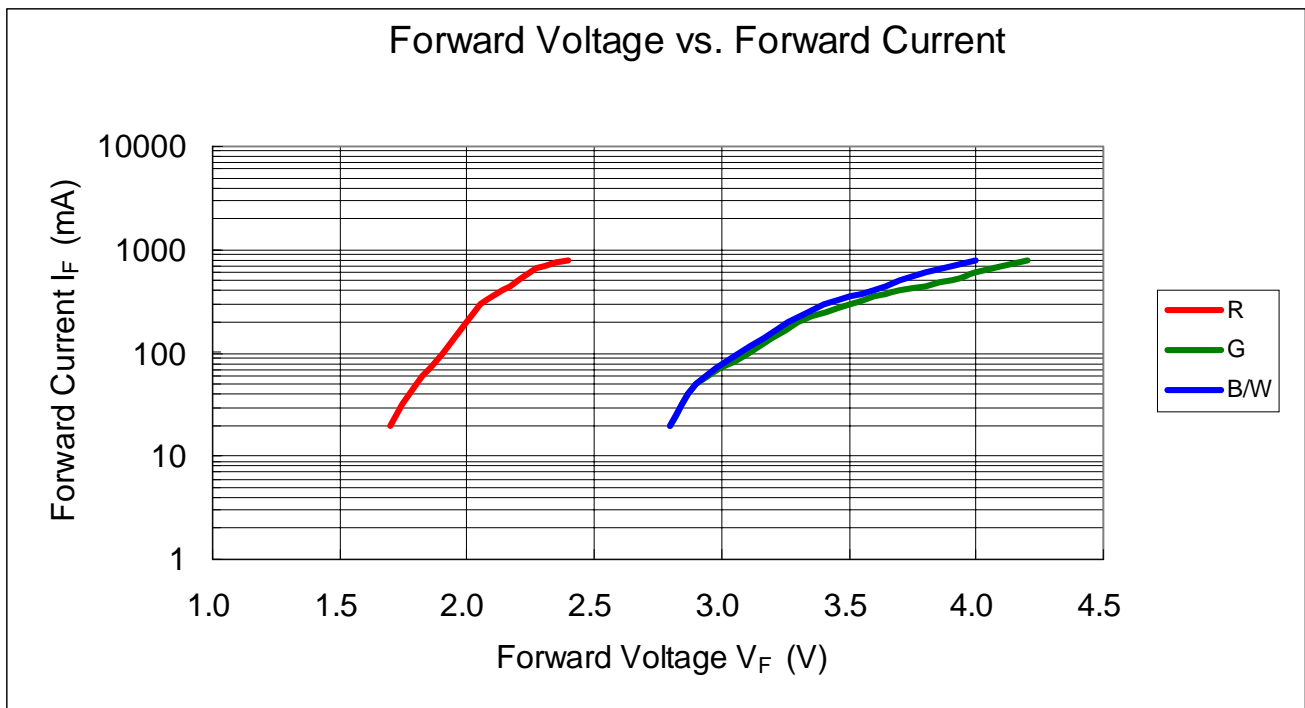
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## 8. Spatial Radiation Pattern

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



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



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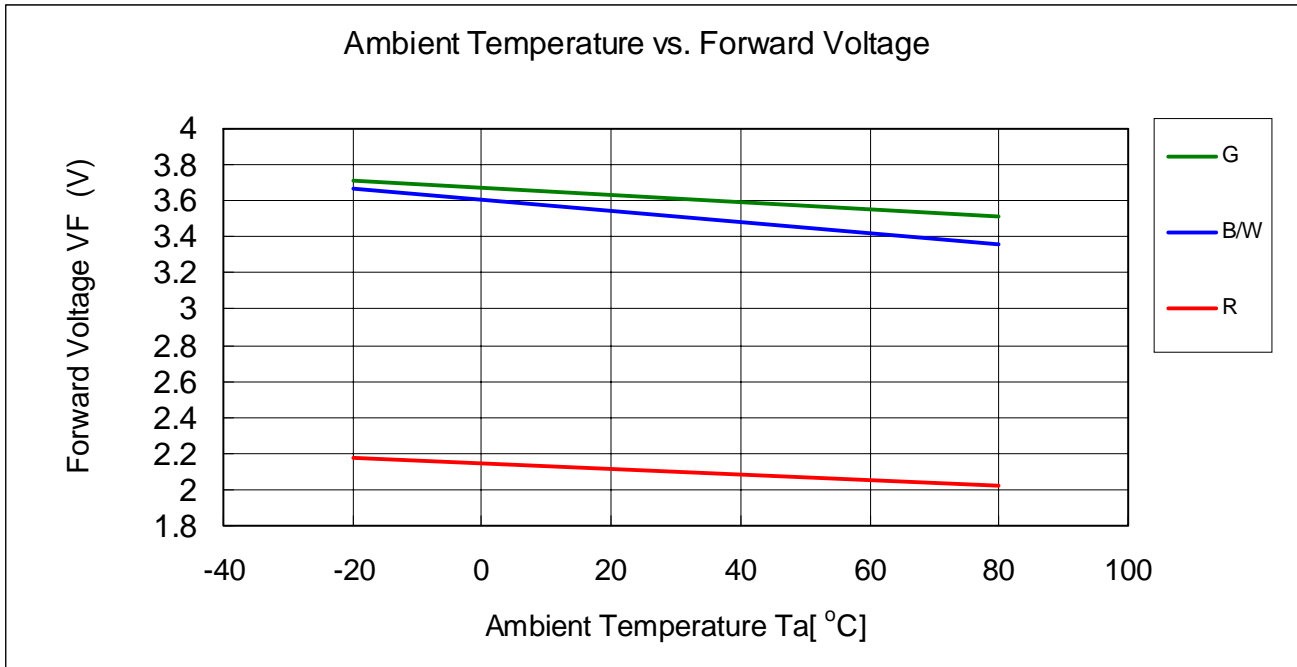
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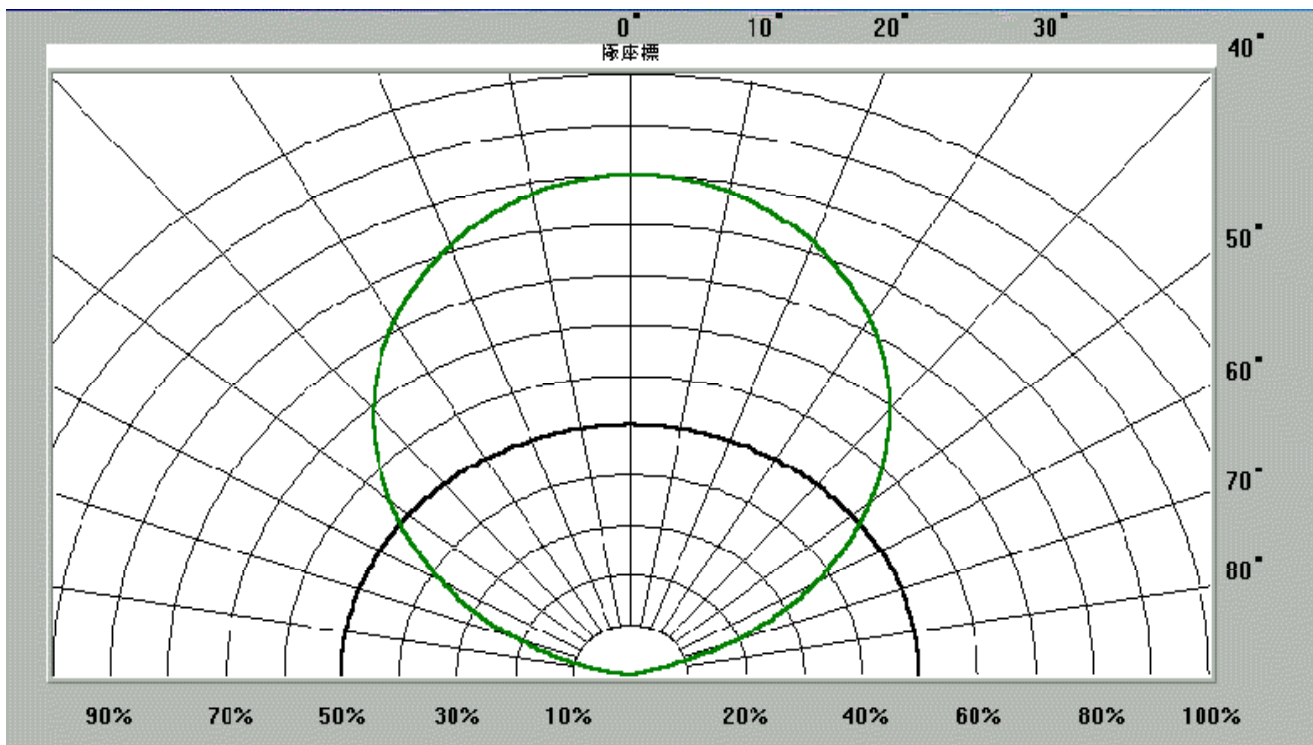
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- Forward voltage vs. ambient temperature ( $I_F=350\text{mA}$ )



## 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