

PRODUCT SPECIFICATION

DATE: 03/08/2005

cosmo ELECTRONICS CORPORATION	H.P LED : KLH00AXX3	NO. 61L70009	REV. 1
		SHEET 1 OF 6	

1. Features

Cosmo's high power LED packages can handle up to 350-500mA DC current, and available in 590nm wavelength in mono or multiple colors. These packages are formed by bonding 3 pcs of 40 mil 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.
- $130\pm 10^\circ$ 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

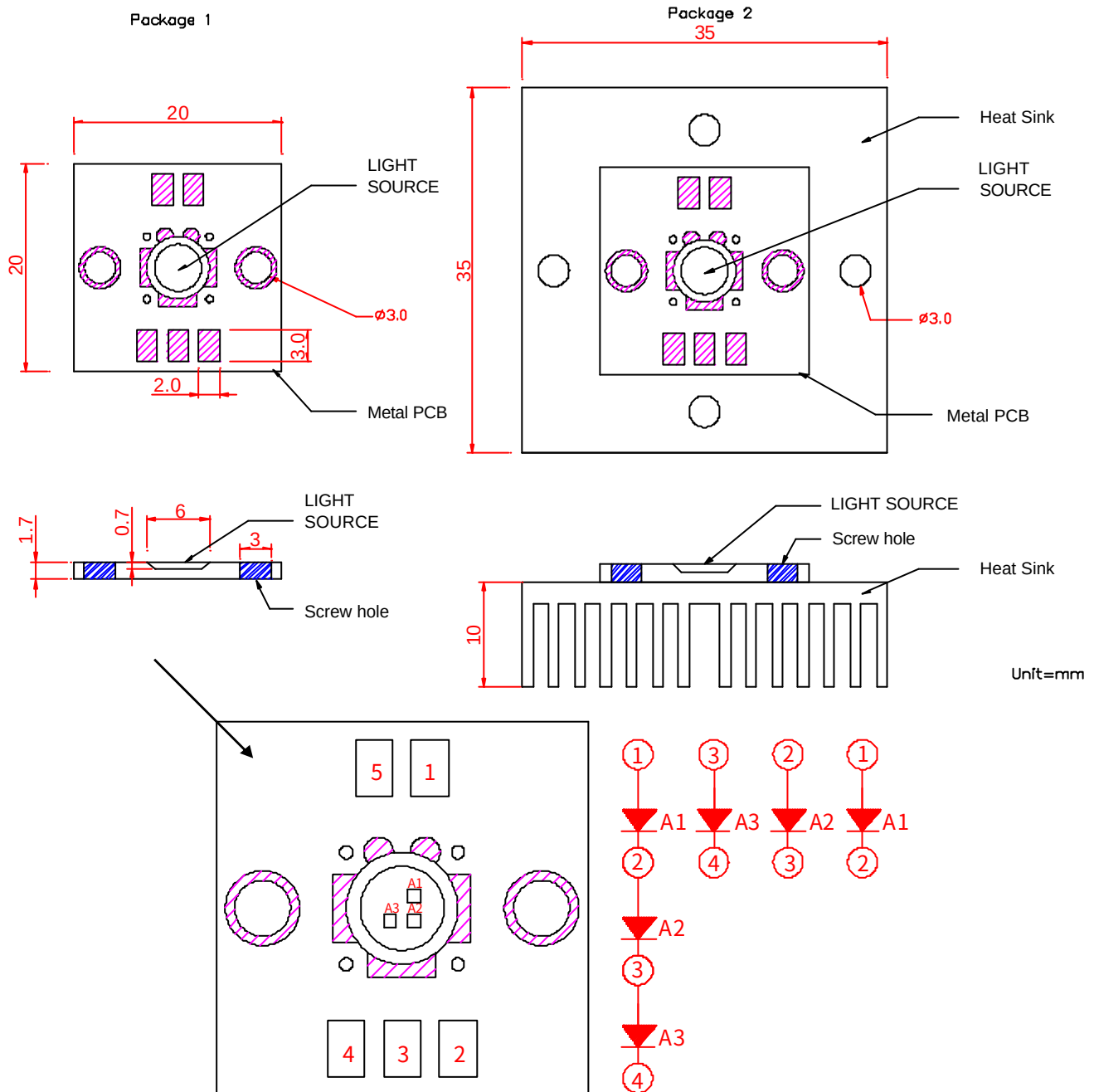
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4. Dimensions

- 35(L)x35(W)x12(H)mm



5. Flux Characteristics

Flux characteristics of mono color LED at 350mA, junction temperature, $T_a = 25^\circ\text{C}$

Chip quantity : 3 LEDs/PCB

Part Number	Color/Wavelength (λ_d)	Forward Voltage (Vf)		Luminous Flux (lm)		Wattage Max. (W)	View angle ($2\theta \frac{1}{2}$)
KLH00AXX3	Amber/590nm	Typ.	Max	Min	Typ.	2.8	$130 \pm 10^\circ$
		7.2	7.8	40	46		

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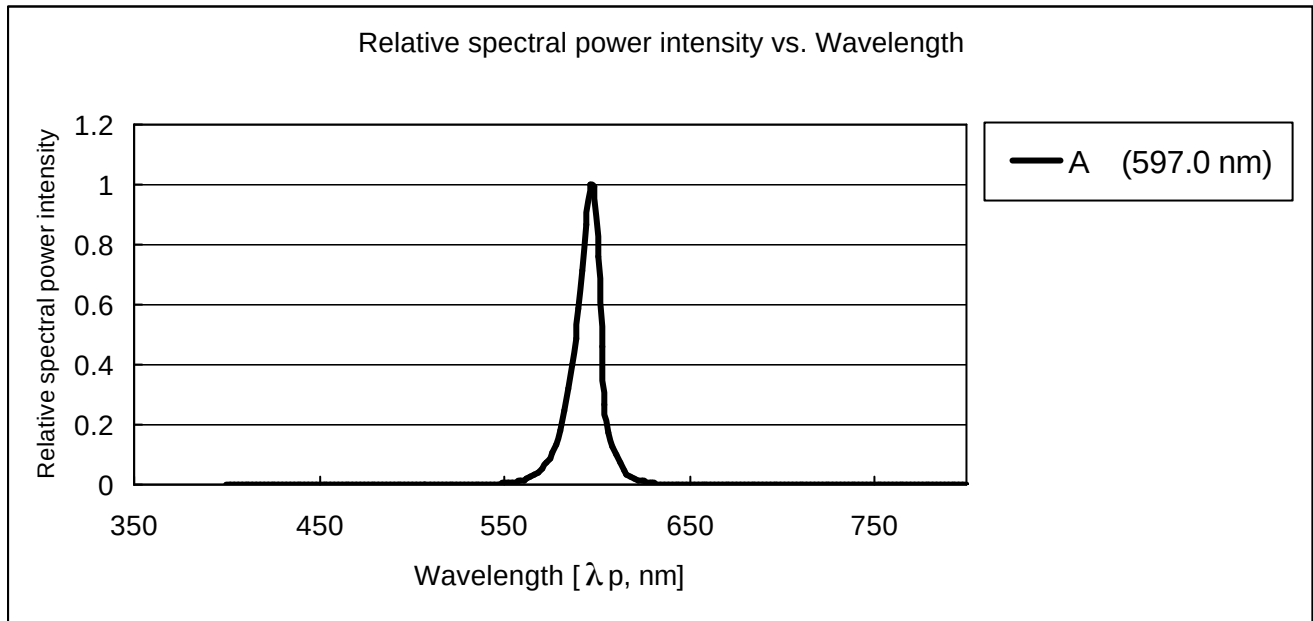
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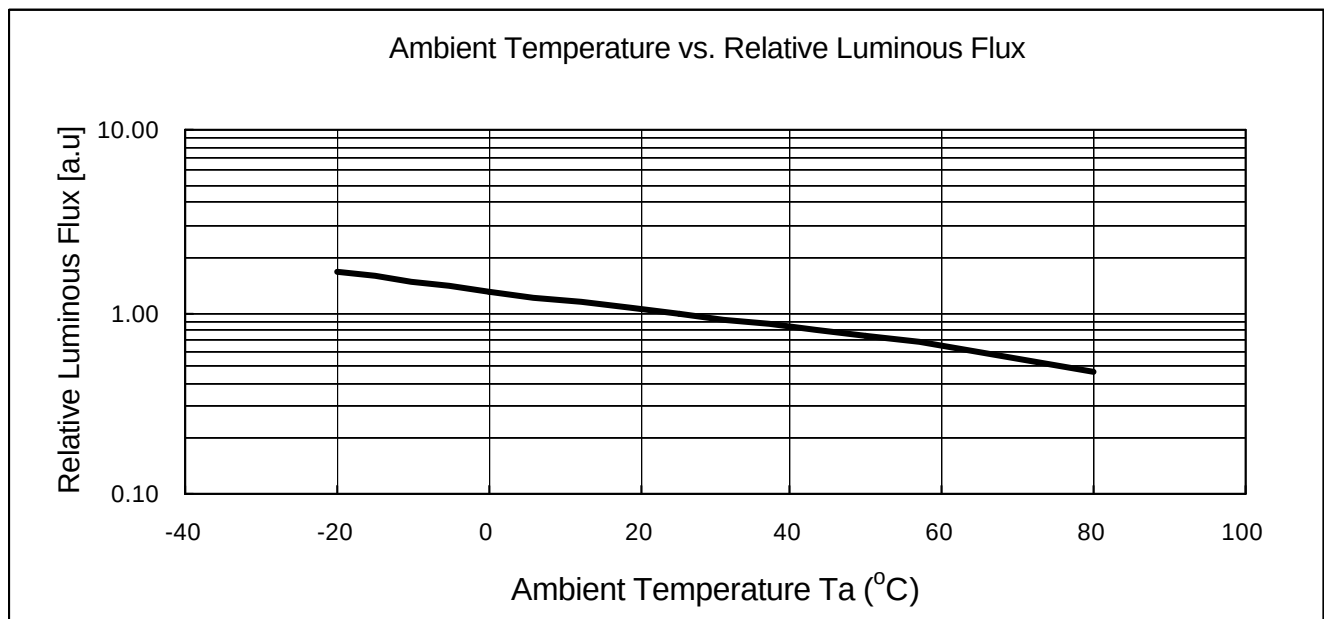
6. Wavelength Characteristics

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



7. Light Output Characteristics

- Relative light output vs. junction temperature



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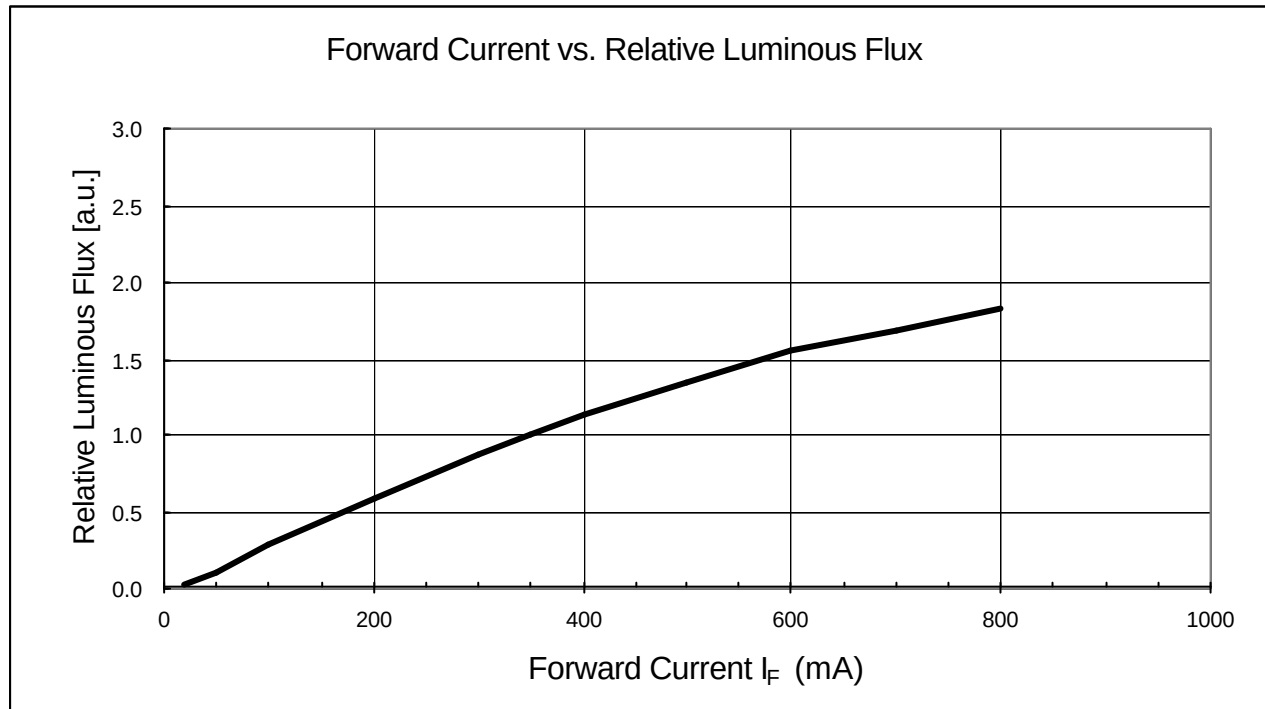
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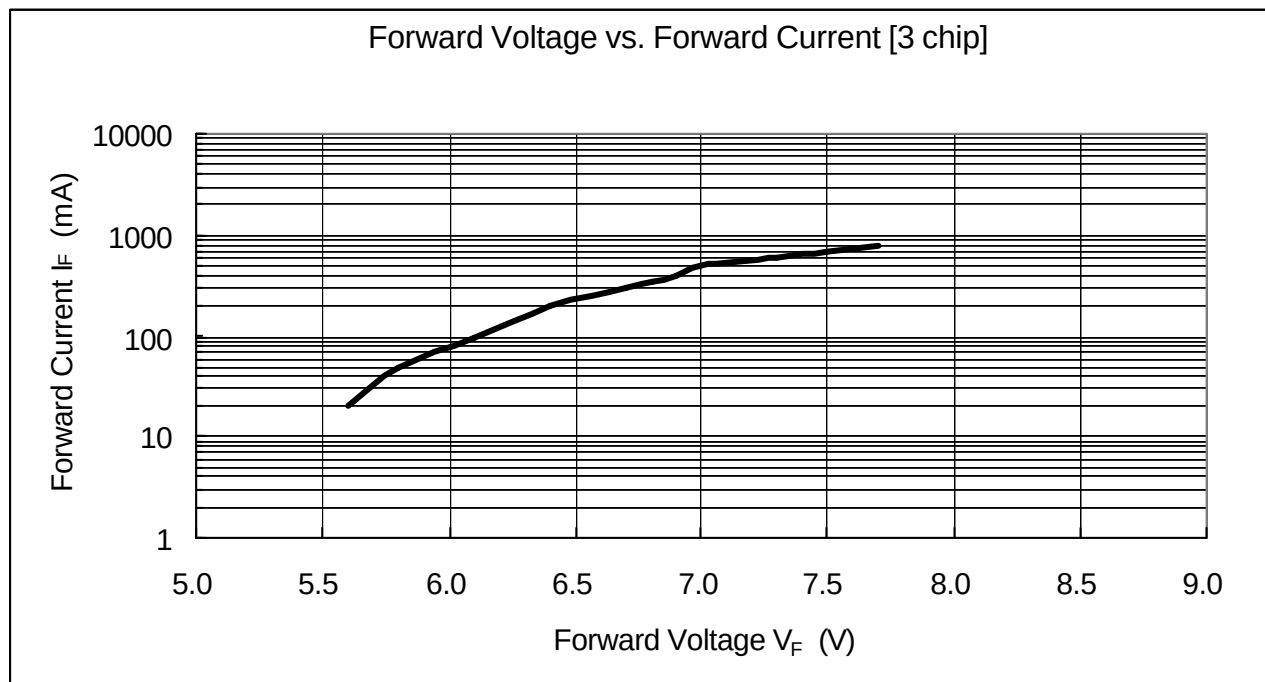
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8. Forward Current Characteristics

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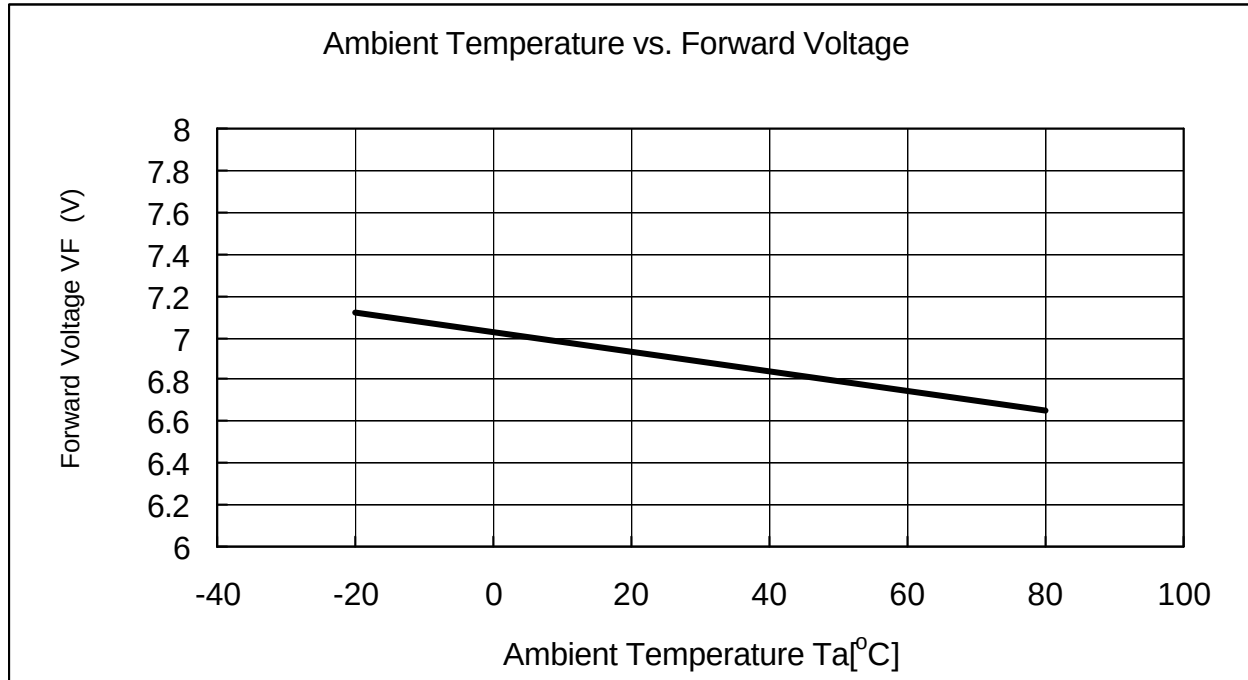
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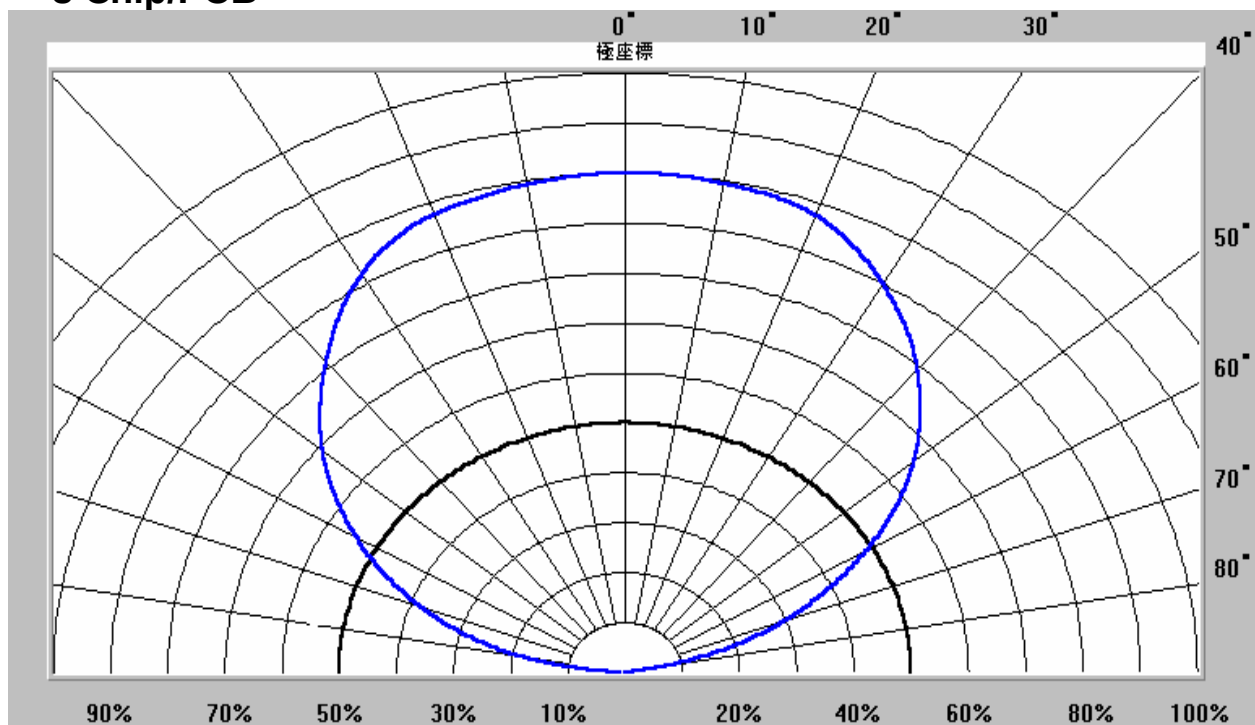
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- Forward voltage vs. ambient temperature (3 LEDs/PCB, $I_F=350\text{mA}$)



9. Spatial Radiation Pattern

- 3 Chip/PCB



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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)Iv< 50% degradation (2)Vf 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