

# PRODUCT SPECIFICATION

DATE: 03/08/2005

<b>cosmo</b> ELECTRONICS CORPORATION	H.P LED :	NO. 61L70003	REV.
	<b>KLH00BXX4</b>	SHEET 1 OF 6	1

## 1. Features

*Cosmo's high power LED packages* can handle up to 350-500mA DC current, and available in 470nm wavelength in mono or multiple colors. These packages are formed by bonding 4 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 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.
- $130\pm 10^\circ$  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

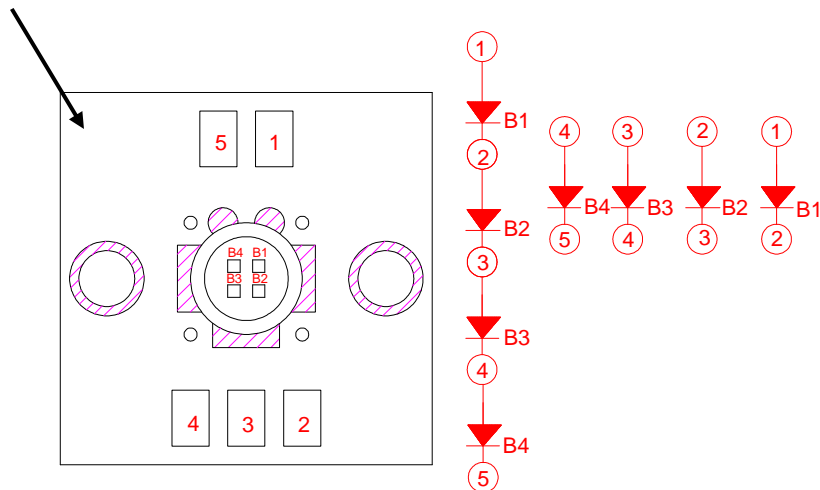
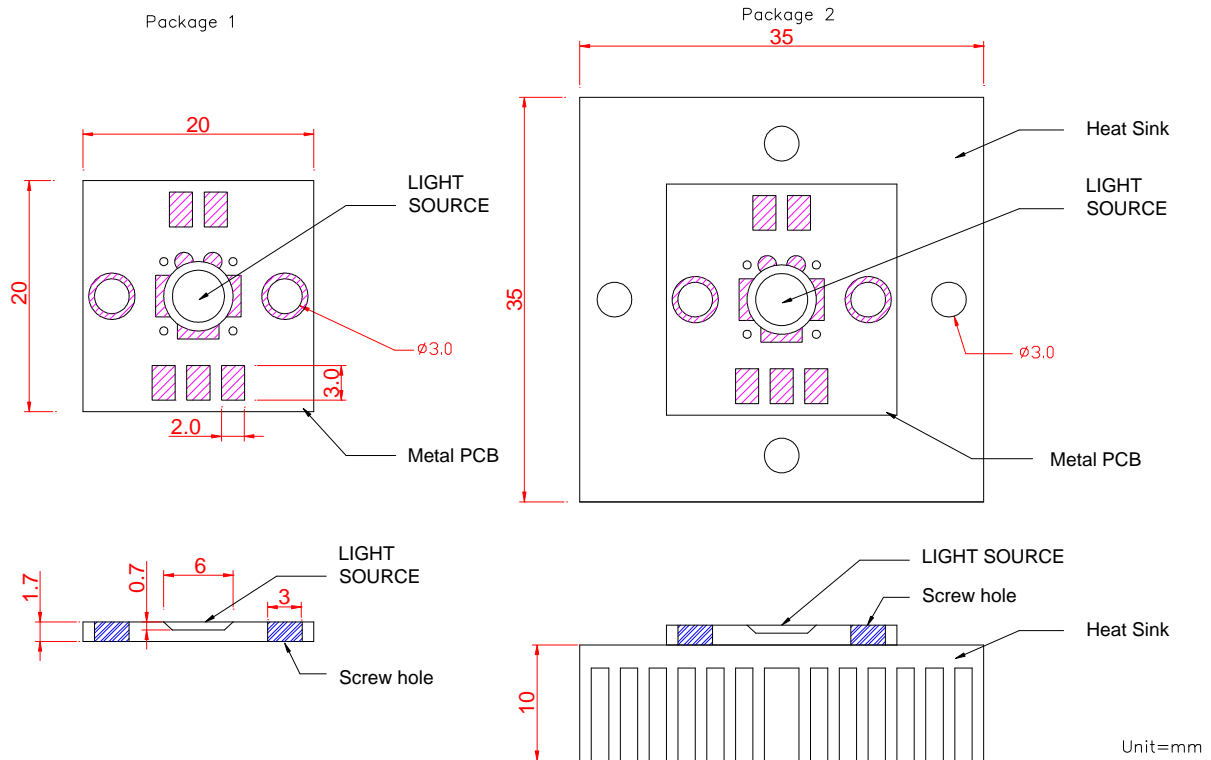
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## 4. Dimensions

- 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 : 4 LEDs/PCB

Part Number	Color/Wavelength ( d)	Forward Voltage (Vf)		Luminous Flux (lm)		Wattage Max. (W)	View angle ( $2 \frac{1}{2}$ )
		Typ.	Max	Min	Typ.		
KLH00BXX4	Blue/470nm	Typ.	Max	Min	Typ.	5.6	130±10°
		14.4	16	10	18		

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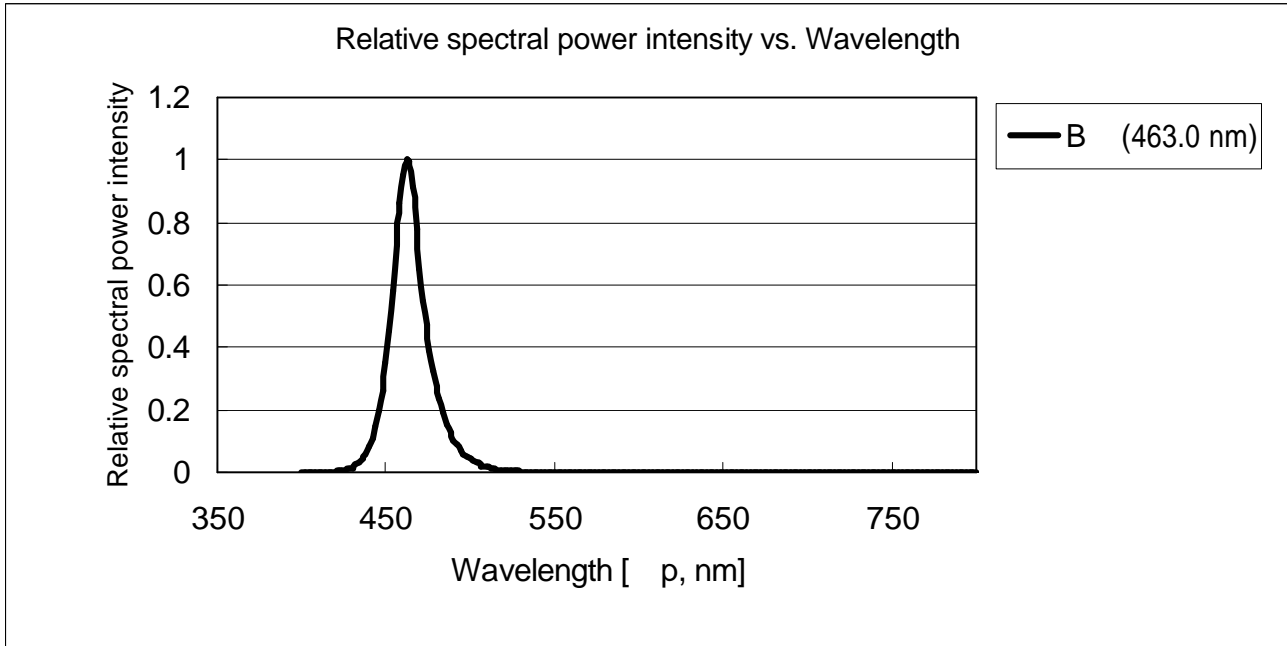
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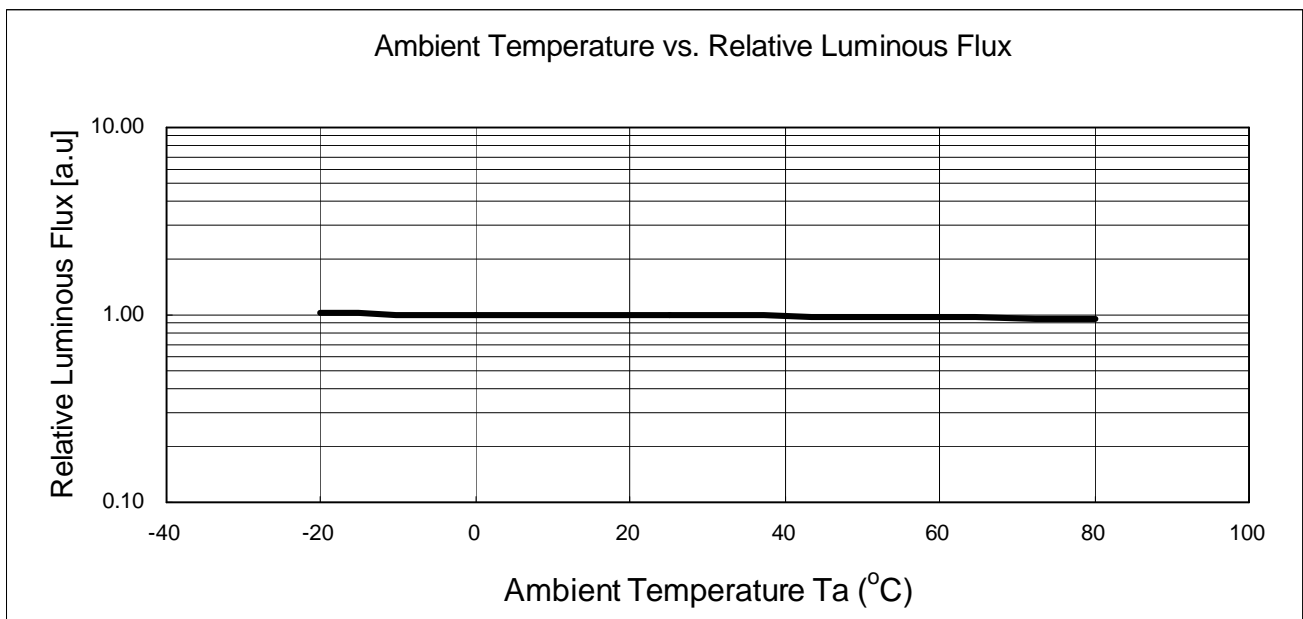
## 6. Wavelength Characteristics

- 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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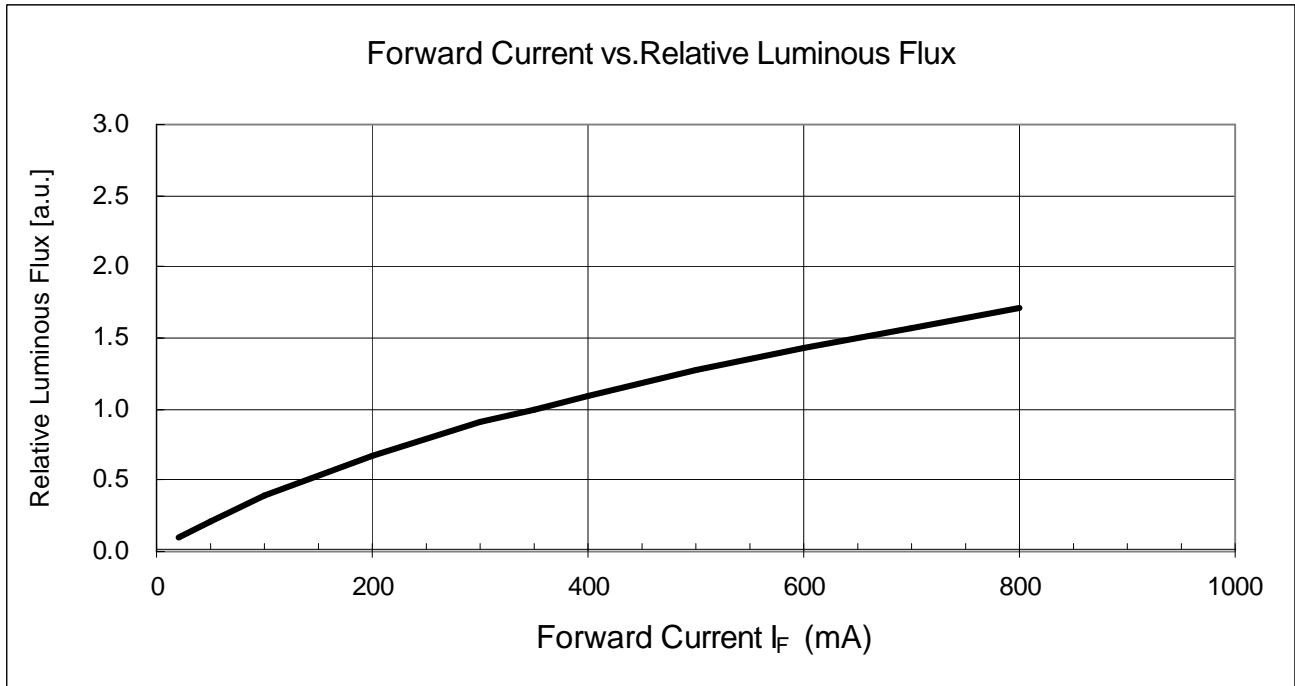
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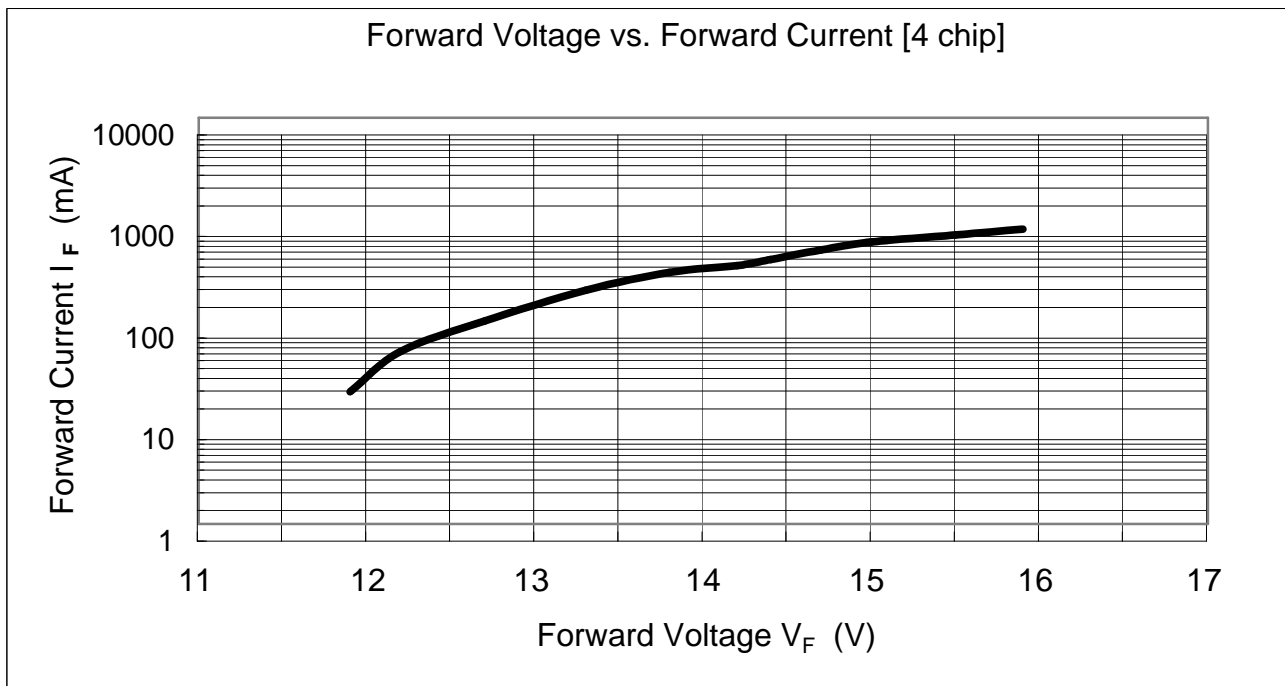
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## 8. Forward Current Characteristics

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



- Forward voltage vs. forward current (4 LED/PCB,  $T_a=25^\circ\text{C}$ )



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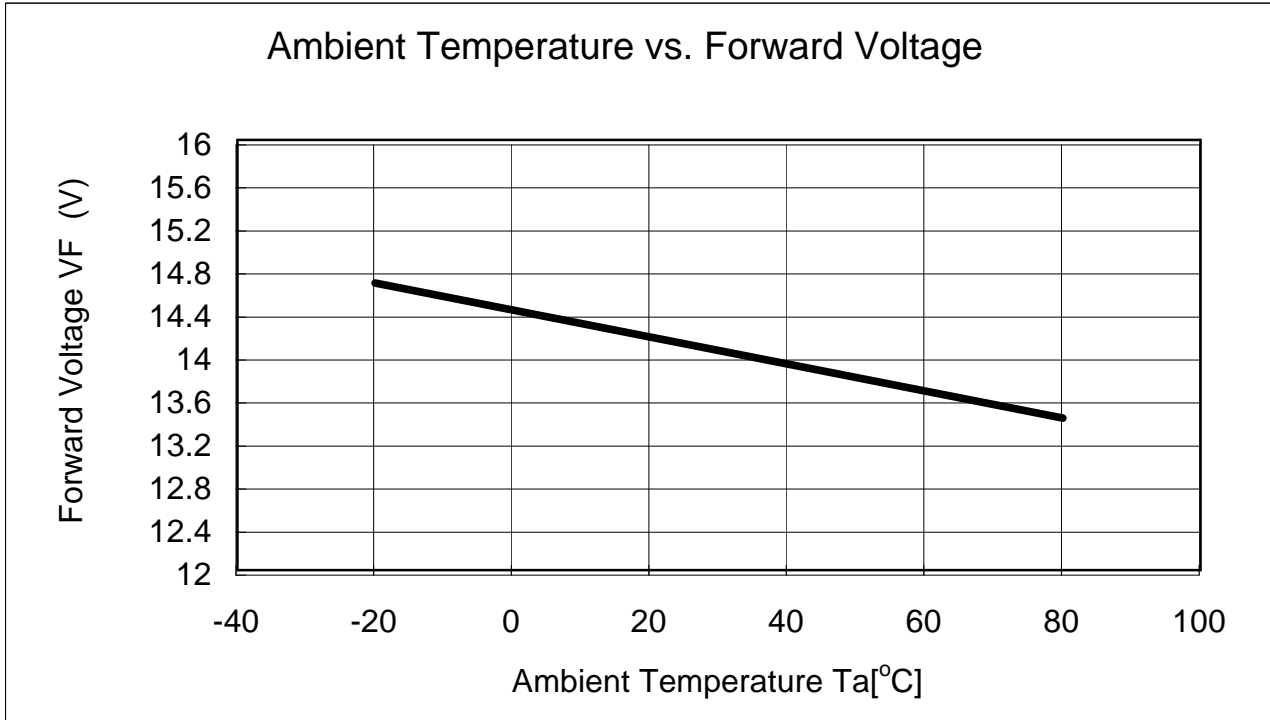
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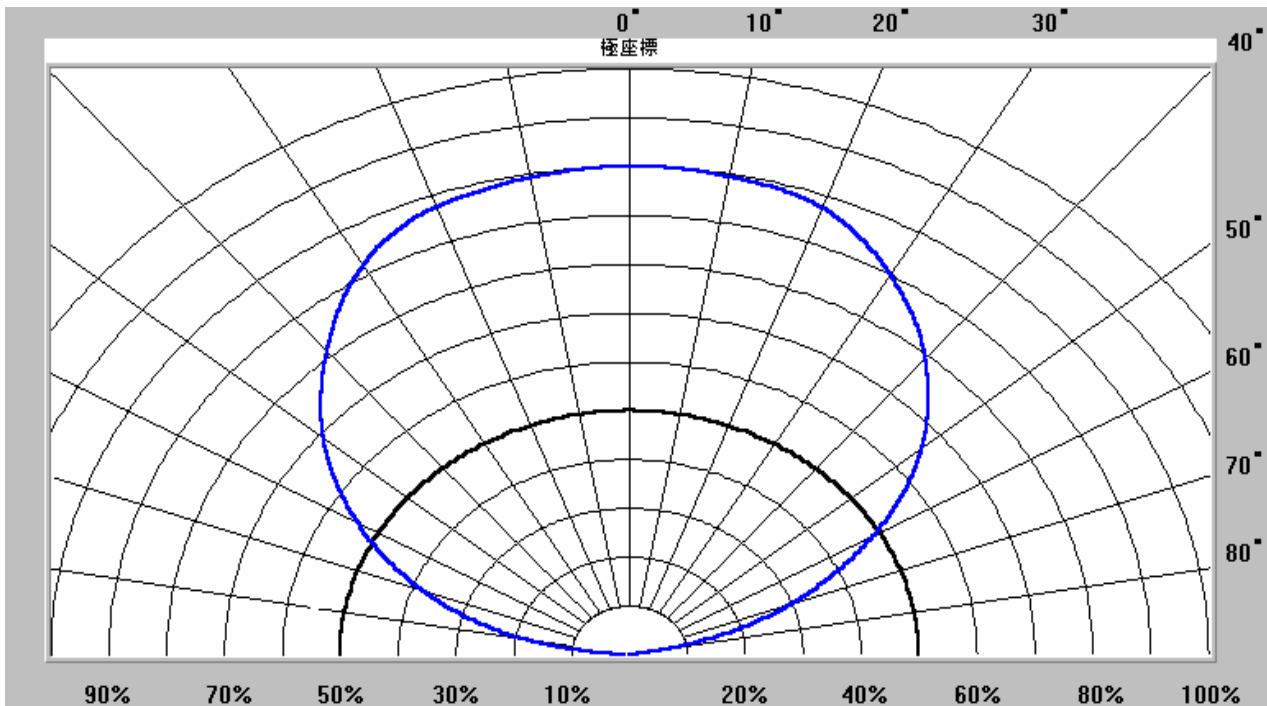
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- Forward voltage vs. ambient temperature (4 LED/PCB,  $I_F=350\text{mA}$ )



## 9. Spatial Radiation Pattern

- 4 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