

Power LED III

TECHNICAL DATA

F50380

Preliminary

•The appearance and specifications of the product may be
modified for improvement without notice

2005. 6. Rev 0



SEOUL SEMICONDUCTOR CO., LTD.
148-29, Kasan-Dong, Keumchun-Gu, Seoul, Korea
TEL : 82-2-3281-6269 FAX : 82-2-857-5430

SPECIFICATIONS

- Features

- Super high flux output and high luminance
- Designed for high current operation
- Low thermal resistance
- SMT solderability
- Lead (Pb) Free Product – RoHS Compliant

- Applications

- General Illumination
 - Outdoor & Indoor architectural lighting
 - Decorative lighting
 - Torch lighting
 - Portable lighting (Flash and lamp) and Reading lighting
 - LCD Backlighting

- Description

This package LEDs are designed for high current operation and high flux output application. But the package's design features better thermal management characteristics than other LED solutions.

Because of these advantages, this product have many applications such as internal & external lighting and automobile lamps, and large size LCD backlight etc.

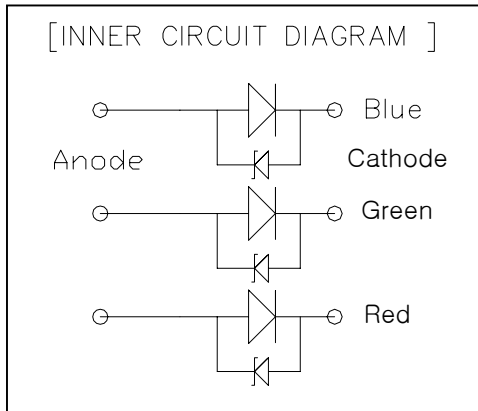
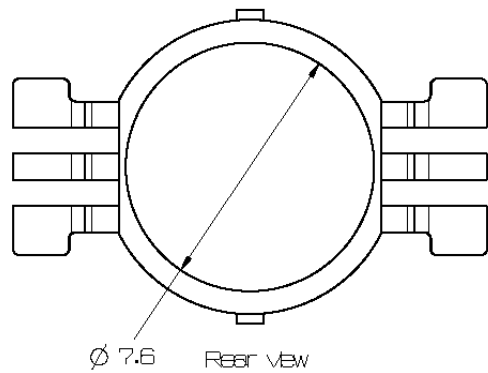
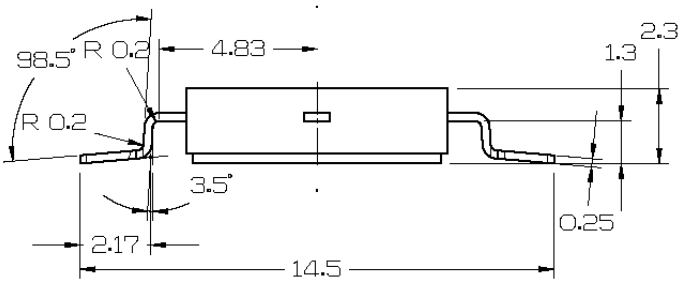
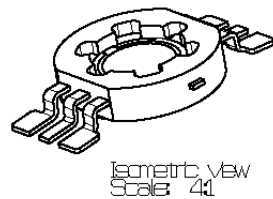
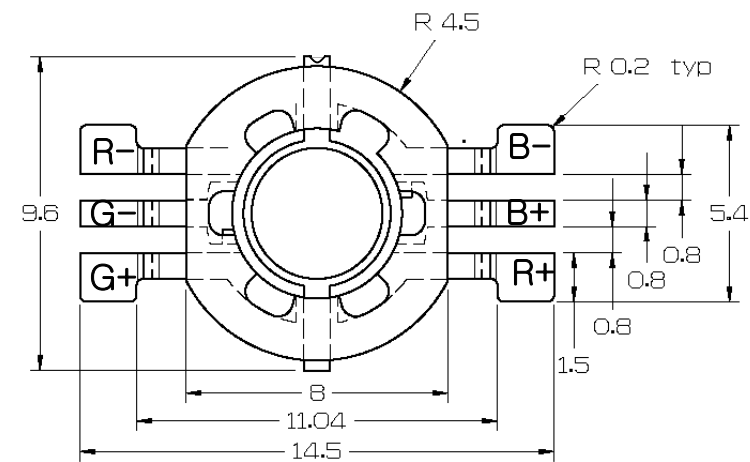


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1. Outline Dimensions



- Notes :
1. All dimensions are in millimeters.
 2. Scale : none
 3. This drawing is reference only for engineering



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White

2. Electro-Optical Characteristics (at $T_A=25^\circ\text{C}$)

Parameter	Symbol	Value			Unit
		Min	Typ	Max	
Luminous Flux	$\Phi_V^{[1]}$	-	55	-	lm
Correlated Color Temperature	CCT	-	6000	-	K
Forward Voltage	V_F	-	R:2.5 ,B/G:3.4	-	V
Forward Current	I_F	R:237, G:370, B:120			mA

3. Absolute Maximum Ratings (at $T_A=25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Forward Current	I_F	1.2	A
Power Dissipation	P_D	3.5	W
Junction Temperature	T_j	125	$^\circ\text{C}$
Operating Temperature	T_{opr}	-30 ~ +85	$^\circ\text{C}$
Storage Temperature	T_{stg}	-40 ~ +120	$^\circ\text{C}$
ESD Sensitivity ^[2]	-	$\pm 20,000\text{V HBM}$	-

*Notes : [1] Φ_V is the total luminous flux output as measured with an integrating sphere.

[2] It is included the zener chip to protect the product from ESD.

[3] SSC maintains a tolerance of $\pm 10\%$ on flux and power measurements.

[4] A tolerance of $\pm 0.006\text{V}$ on forward voltage measurements

* It is necessary to equip proper heat sink which controls below 50°C of package temperature in order to have over 95% of light efficiency

-----Caution-----

Please do not drive a rated current more than 5 sec. without proper heat sink



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Blue

2. Electro-Optical Characteristics (at $I_F=350\text{mA}$, $T_A=25^\circ\text{C}$)

Parameter	Symbol	Value			Unit
		Min	Typ	Max	
Luminous Flux	$\Phi_V^{[1]}$	6	9	-	lm
Dominant Wavelength	λ_D	455	460	465	nm
Forward Voltage	V_F	3.0	3.5	4.0	V
View Angle	2Θ 1/2	120			deg.
Thermal Resistance	$R\Theta^{[4]}$	-			$^\circ\text{C}/\text{W}$

3. Absolute Maximum Ratings (at $T_A=25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Forward Current	I_F	0.4	A
Power Dissipation	P_D	1.6	W
Junction Temperature	T_j	125	$^\circ\text{C}$
Operating Temperature	T_{opr}	-30 ~ +85	$^\circ\text{C}$
Storage Temperature	T_{stg}	-40 ~ +120	$^\circ\text{C}$
ESD Sensitivity [2]	-	$\pm 20,000\text{V}$ HBM	-

*Notes : [1] Φ_V is the total luminous flux output as measured with an integrating sphere.

[2] It is included the zener chip to protect the product from ESD.

[3] $R\Theta$ is measured with a SSC metal core pcb.($25^\circ\text{C} \leq T_j \leq 110^\circ\text{C}$)

[4] SSC maintains a tolerance of $\pm 10\%$ on flux and power measurements.

[5] A tolerance of $\pm 0.006\text{V}$ on forward voltage measurements

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Green

2. Electro-Optical Characteristics (at $I_F=350mA$, $T_A=25^\circ C$)

Parameter	Symbol	Value			Unit
		Min	Typ	Max	
Luminous Flux	$\Phi_V^{[1]}$	24	42	-	lm
Dominant Wavelength	λ_D	520	527	535	nm
Forward Voltage	V_F	3.0	3.5	4.0	V
View Angle	2Θ 1/2	130			deg.
Thermal Resistance	$R\theta^{[3]}$	-			$^\circ C/W$

3. Absolute Maximum Ratings (at $T_A=25^\circ C$)

Parameter	Symbol	Value	Unit
Forward Current	I_F	0.4	A
Power Dissipation	P_D	1.6	W
Junction Temperature	T_j	125	$^\circ C$
Operating Temperature	T_{opr}	-30 ~ +85	$^\circ C$
Storage Temperature	T_{stg}	-40 ~ +120	$^\circ C$
ESD Sensitivity ^[2]	-	$\pm 20,000V$ HBM	-

*Notes : [1] Φ_V is the total luminous flux output as measured with an integrating sphere.

[2] It is included the zener chip to protect the product from ESD.

[3] $R\theta$ is measured with a SSC metal core pcb.($25^\circ C \leq T_j \leq 110^\circ C$)

[4] SSC maintains a tolerance of $\pm 10\%$ on flux and power measurements.

[5] A tolerance of $\pm 0.006V$ on forward voltage measurements

* It is necessary to equip proper heat sink which controls below $50^\circ C$ of package temperature in order to have over 95% of light efficiency

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Red

2. Electro-Optical Characteristics (at $I_F=350mA$, $T_A=25^{\circ}C$)

Parameter	Symbol	Value			Unit
		Min	Typ	Max	
Luminous Flux	$\Phi_V^{[1]}$	22	30	-	lm
Dominant Wavelength	λ_D	620	625	630	nm
Forward Voltage	V_F	2.2	2.5	2.8	V
View Angle	2Θ 1/2	130			deg.
Thermal Resistance	$R\theta^{[4]}$	-			$^{\circ}C/W$

3. Absolute Maximum Ratings (at $T_A=25^{\circ}C$)

Parameter	Symbol	Value	Unit
Forward Current	I_F	0.4	A
Power Dissipation	P_D	1.2	W
Junction Temperature	T_j	100	$^{\circ}C$
Operating Temperature	T_{opr}	-30 ~ +85	$^{\circ}C$
Storage Temperature	T_{stg}	-40 ~ +120	$^{\circ}C$
ESD Sensitivity [2]	-	$\pm 20,000V$ HBM	-

*Notes : [1] Φ_V is the total luminous flux output as measured with an integrating sphere.

[2] It is included the zener chip to protect the product from ESD.

[3] $R\theta$ is measured with a SSC metal core pcb.($25^{\circ}C \leq T_j \leq 110^{\circ}C$)

[4] SSC maintains a tolerance of $\pm 10\%$ on flux and power measurements.

[5] A tolerance of $\pm 0.006V$ on forward voltage measurements

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22. Precaution for use

(1) Storage

In order to avoid the absorption of moisture, it is recommended to store in the dry box (or desiccator) with a desiccant . Otherwise, to store them in the following environment is recommended. Temperature : 5℃~30℃ Humidity : 60%HR max.

(2) Attention after opened

However LED is correspond SMD, when LED be soldered dip, interfacial separation may affect the light transmission efficiency, causing the light intensity to drop.

Attention in followed.

a. After opened and mounted, the soldering shall be quickly.

b. Keeping of a fraction

Temperature : 5 ~ 40℃ Humidity : less than 30%

(3) In case of more than 1 week passed after opening or change color of indicator on desiccant components shall be dried 10-12hr. at 60±5℃.

(4) In case of supposed the components is humid, shall be dried dip-solder just before. 100Hr at 80±5℃ or 12Hr at 100±5℃.

(5) Any mechanical force or any excess vibration shall not be accepted to apply during cooling process to normal temp. after soldering.

(6) Quick cooling shall avoid.

(7) Components shall not be mounted on warped direction of PCB.

(8) Anti radioactive ray design is not considered for the products listed here in.

(9) Gallium arsenide is used in some of the products listed in this publication. These products are dangerous if they are burned or smashed in the process of disposal. It is also dangerous to drink the liquid or inhale the gas generated by such products when chemically disposed.

(10) This device should not be used in any type of fluid such as water, oil, organic solvent and etc. When washing is required, IPA should be used.

(11) When the LEDs are illuminating, operating current should be decided after considering the package maximum temperature.

(12) LEDs must be stored to maintain a clean atmosphere. If the LEDs are stored for 3 months or more after being shipped from SSC, a sealed container with a nitrogen atmosphere should be used for storage.

(13) The LEDs must be soldered within seven days after opening the moisture-proof packing.

(14) Repack unused products with anti-moisture packing, fold to close any opening and then store in a dry place.

(15) The appearance and specifications of the product may be modified for improvement without notice.

(16) The PKG with LENS can't reflow soldering

(17) Long time exposure of sunlight or UV occasions color of PKG



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5. Handling of silicone resin LEDs

Z-Power LED is encapsulated by silicone resin for the highest flux efficiency.

Notes for handling of Silicone resin Z-Power LEDs

- 1) Avoid touching silicone resin parts especially by sharp tools such as Pincette(Tweezers)**
- 2) Avoid leaving fingerprints on silicone resin parts.**
- 3) Dust sensitivity silicone resin need containers having cover for storage.**
- 4) When populating boards in SMT production, there are basically no restrictions regarding the form of the pick and place nozzle, except that mechanical pressure on the surface of the resin must be prevent.**

This is assured by choosing a pick and place nozzle which is larger than the LEDs silicone resin area



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