

DATE OF ISSUE : 2008. 02. 21

SPECIFICATION

MODEL : SLHNNWW511N0

HIGH POWER LED - SUNNIX

CUSTOMER : _____

SAMSUNG ELECTRO-MECHANICS		
DRAWN	CHECKED	APPROVED

CUSTOMER		
CHECKED	CHECKED	APPROVED

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Product Outline

1) Feature

1. Plastic Molded L/Frame type (7.0mm * 7.0mm * t 2.0mm)
2. Beam Angle ($\Delta\theta : 120^\circ$)
3. High Power/Brightness Chip & Long Time Reliability

2) Applications

- Automotive, Illumination etc.

Absolute Maximum Rating^{1),2)}

- Operating Temperature Range (T_{opr}) $-35^\circ\text{C} \sim 85^\circ\text{C}$
- Storage Temperature Range (T_{stg}) $-40^\circ\text{C} \sim 110^\circ\text{C}$
- Operation Forward Current 700 mA
- Peak Pulsed Forward Current 800 mA
(Duty 1/10 Pulse Width 10msec)
- Reverse Voltage 5V
- Thermal Resistance(R_{th})³⁾ $\cong 10^\circ\text{C/W}$
- LED Junction Temperature (T_j) 125°C
- Storage Temperature Range (T_{stg}) $-40^\circ\text{C} \sim 110^\circ\text{C}$

Characteristics^{1),2)}

Electrical Characteristics

($T_j : 25^\circ\text{C}$)

Item	Rank	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward Voltage	S	V _F	2.9	3.5	4.1	V	I _F =350mA
Reverse Voltage	-	V _R	0.5	-	2.0		I _R =10mA

Chromaticity Coordinate

Rank	CCx				CCy				CCT [K]	Condition
T0	0.3700	0.4041	0.4397	0.3919	0.3322	0.3551	0.4367	0.4190	3,200~4,000	I _F =350mA
U0	0.4041	0.4440	0.4880	0.4397	0.3551	0.3700	0.4490	0.4367	2,600~3,200	
V0	0.4440	0.4980	0.5480	0.4880	0.3700	0.3694	0.4450	0.4490	2,000~2,600	

Luminous Flux

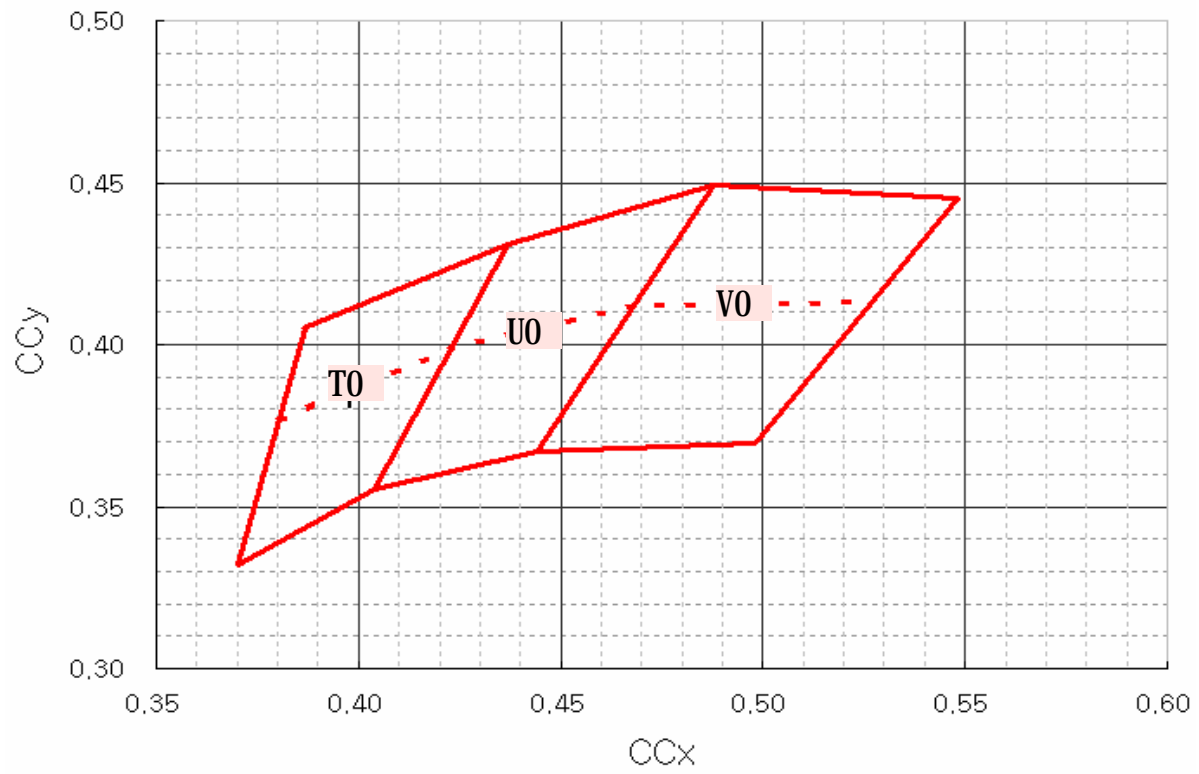
Rank	Symbol	Min.	Typ.	Max.	Unit	Conditions
E1	Φ _v	40	-	50	lm	I _F =350mA
F1		50	-	60		
G1		60	-	70		

Remarks)

1) Tolerance : V_F : ± 0.1 , Φ_v : $\pm 10\%$, CCx CCy : ± 0.02

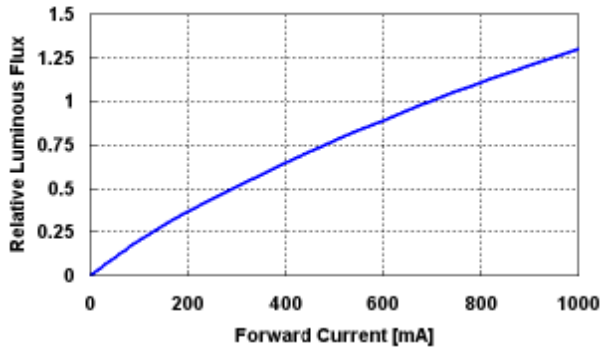
2) Proper thermal managements should be considered into a circuit design

■ Chromaticity Diagram

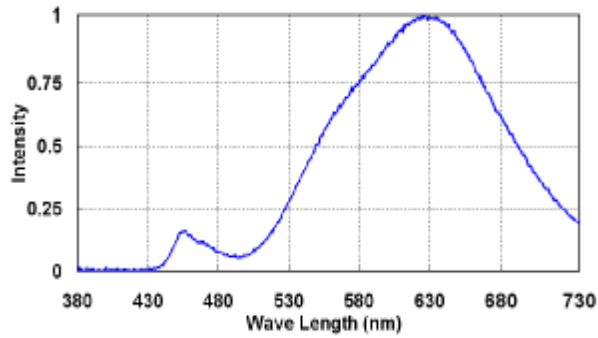
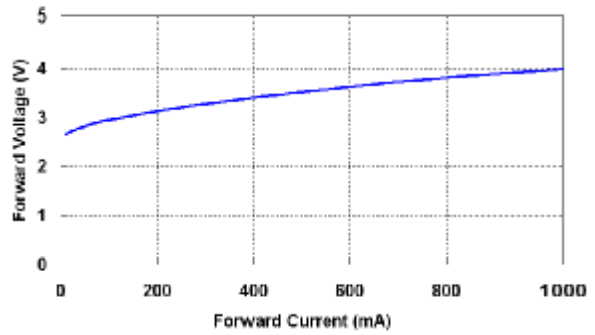


Typical Characteristics Graph

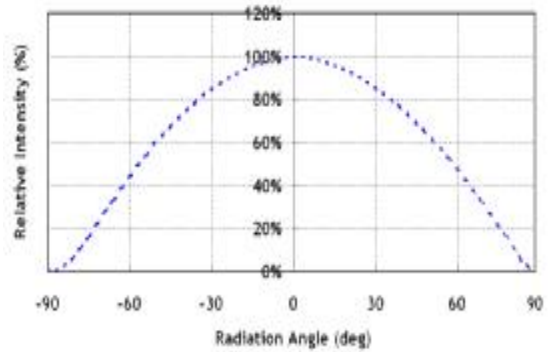
Relative Luminous Flux vs Forward Current



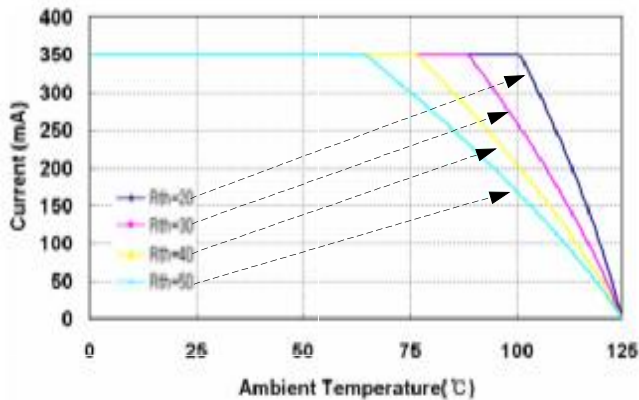
Forward Current vs Forward Voltage



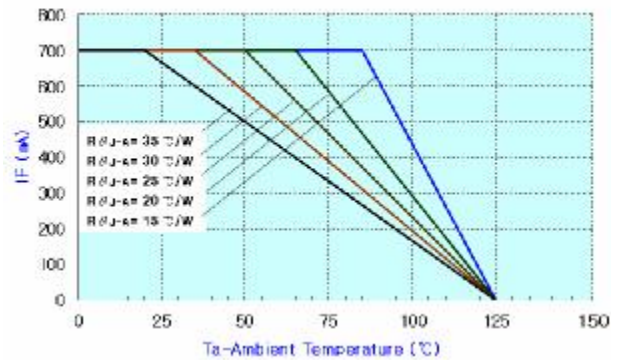
Radiation Diagram



Derating Curve for 350mA

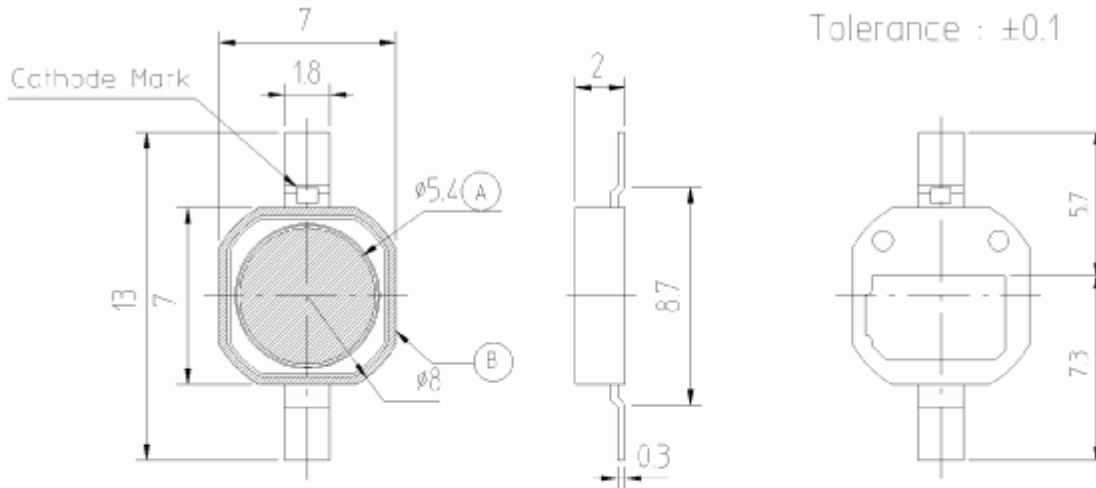


Derating Curve for 700mA (White)



Outline Drawing and Dimension

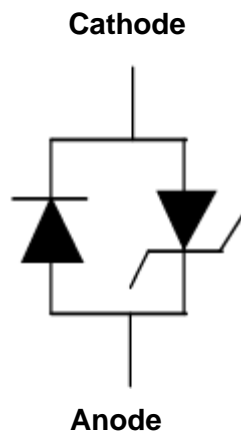
Unit:mm



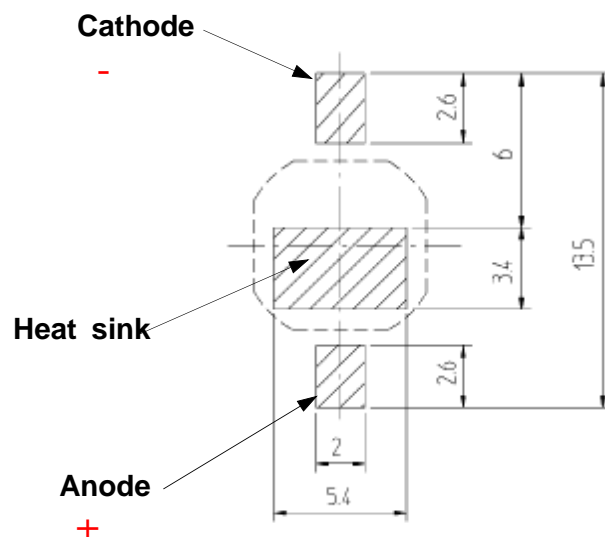
Pick and Place

1. Do not place pressure on the encapsulating resin ("A").
It is recommended to use a pick & place nozzle with inside diameter of 5.8mm.
2. The maximum compressing force is 15N on the polymer ("B").

Circuit



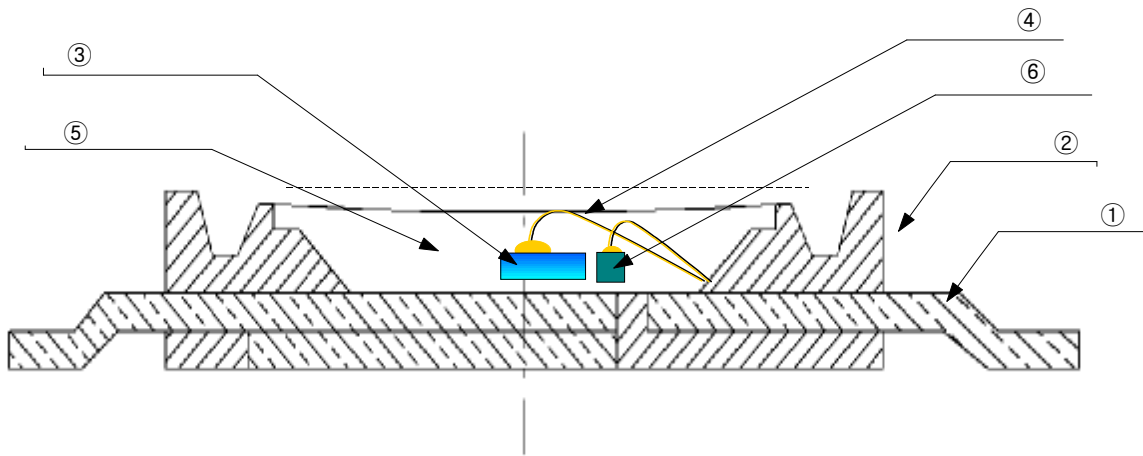
Solder Pattern for Surface Mount



Remarks)

Make sure the heat sink is electrically connected to the Anode.
Heat sink is to be soldered, If not, use the heat conductive adhesive

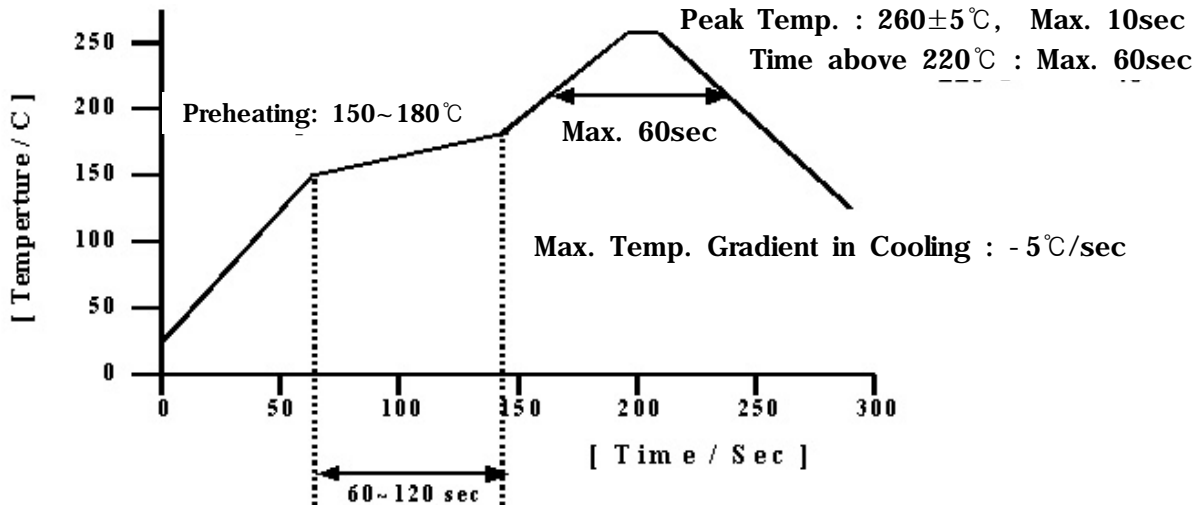
Package Structure



No	Item	Material
①	FRAME	Copper Frame(Silver plated)
②	PACKAGE	Heat- resistant Polymer
③	LED CHIP	SiC
④	WIRE	Gold Wire
⑤	RESIN	Silicone Resin
⑥	ZENER DIODE	Si

■ Solder Conditions

Reflow Frequency : 2 times max.



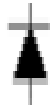
2) For Manual Soldering

Not more than 5 seconds @MAX 300°C , under soldering iron.

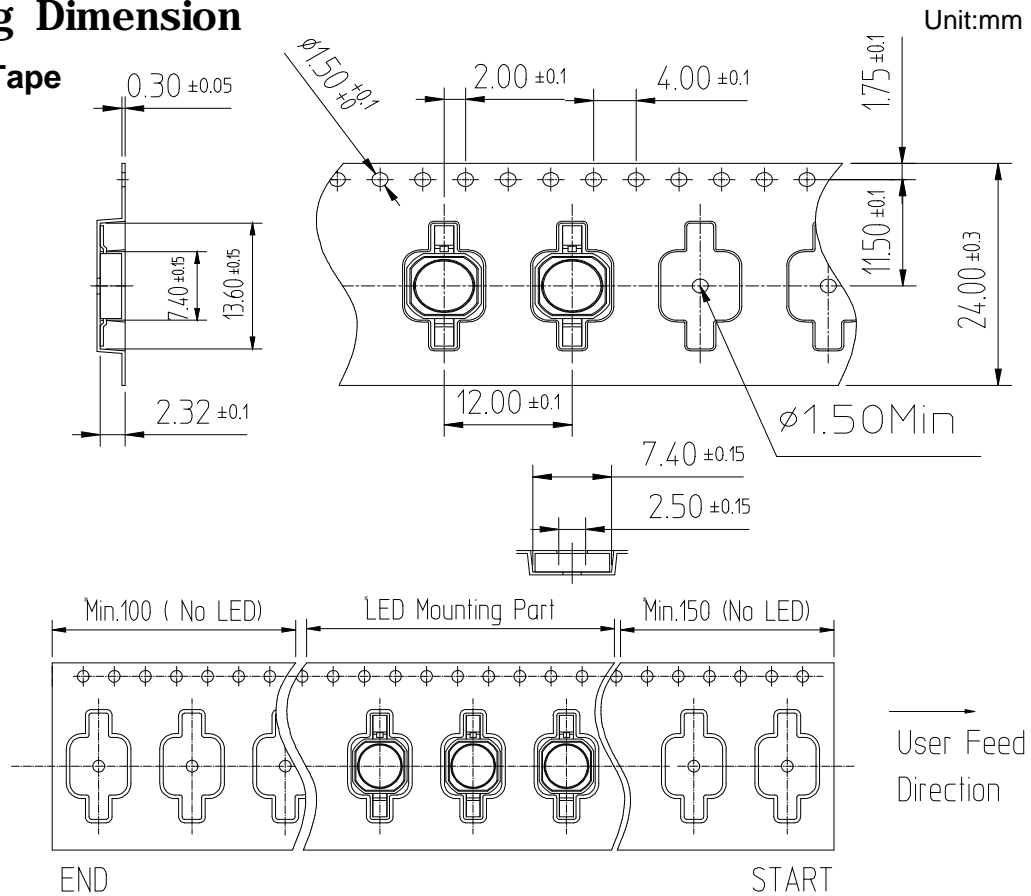
Taping Dimension

1. Carrier Tape

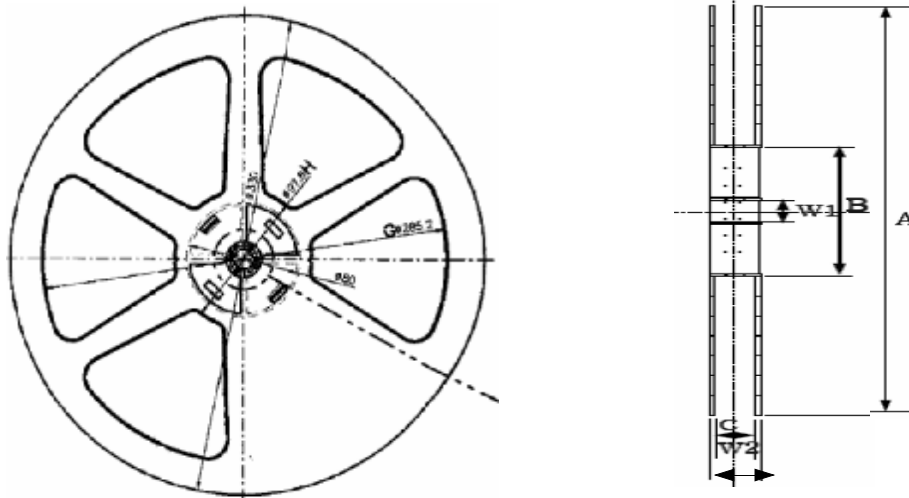
Cathode



Anode



2. Reel



Symbol	A	B	C	W1	W2
Dimension(mm)	330 ± 1	80 ± 1	25 ± 0.5	13 ± 0.3	29.5 ± 1

- (1) Quantity : 2,000 Pcs / 13" Reel.
- (2) Cumulative Tolerance : Cumulative Tolerance/10 pitches to be $\pm 0.2 \text{ mm}$
- (3) Adhesion Strength of Cover Tape : Adhesion strength to be 0.1-0.7N when the cover tape is turned off from the carrier tape at 10°C angle to be the carrier tape.
- (4) Packaging : P/N, Manufacturing data Code No. and quantity to be indicated on a damp proof Package

■ Precaution for Use

- 1) For over-current-proof function, customers are recommended to apply resistors to prevent sudden change of the current caused by slight shift of the voltage.
- 2) This device should not be used in any type of fluid such as water, oil, organic solvent, etc. When washing is required, IPA is recommended to use.
- 3) When the LEDs illuminate, operating current should be decided after considering the ambient maximum temperature.
- 4) LEDs must be stored in a clean environment.
If the LEDs are to be stored for 3 months or more after being shipped from SEMCO, they should be packed by a sealed container with nitrogen gas injected. (Shelf life of sealed bags : 12 months, temp. 0~40°C, 20~70%RH)
- 5) After storage bag is open, device subjected to soldering, solder reflow, or other high temperature processes must be:
 - a. Mounted within 168 hours (7 days) at an assembly line with a condition of no more than 30°C/60%RH,
 - b. Stored at <10% RH.
- 6) Repack unused Products with anti-moisture packing, fold to close any opening and then store in a dry place.
- 7) Devices require baking before mounting, if humidity card reading is >65% at 23±5°C.
- 8) Devices must be baked for 24hours at 65±5°C, if baking is required.
- 9) The LEDs are sensitive to the static electricity and surge. It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs.

If voltage exceeding the absolute maximum rating is applied to LEDs, it may cause damage or even destruction to LED devices.

Damaged LEDs may show some unusual characteristics such as increase in leak current, lowered turn-on voltage, or abnormal lighting of LEDs at low current.

