



# Specification THB105-69

SSC		CUSTOMER
Drawn	Approval	Approval

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# THB105-69

## THB105-69

### Description

- Small size suitable for compact appliances.
- Zener Diode for ESD
- Surface-mounted chip LED device.
- Pb-free and RoHS complaint component.
- Tape and Reel packing.
- Increases the life time of battery.



### Features

- 1.6 (W) X 0.8 (D) X 0.4 (T) mm
- Dominant Wavelength : 470nm

### Applications

- Cellular phone's keypad lightning
- Other decoration lighting
- Information Boards
- Lighting for Small Size Device.

## 1. Absolute maximum ratings

(Ta=25°C)

Parameter	Symbol	Value	Unit
Power Dissipation	$P_d$	64	mW
Forward Current	$I_F$	20	mA
Peak Forward Current	$I_{FM}^{*1}$	50	mA
Reverse Voltage	$V_R$	5	V
Operating Temperature	$T_{opr}$	-35 ~ 85	°C
Storage Temperature	$T_{stg}$	-40 ~ 100	°C

\*1  $I_{FM}$  conditions: Pulse width  $T_w \leq 0.1ms$  and Duty ratio  $\leq 1/10$ .

## 2. Electro-Optical Characteristics

(Ta=25°C)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage	$V_F$	$I_F=5mA$	2.7	3.05	3.2	V
	$V_{Fm}$	$I_F=1\mu A$	1.8	-	2.7	
Forward Zener Voltage	$V_{F(Z)}$	$I_{F(Z)}=10mA$	0.6	0.8	1.5	V
Luminous Intensity <sup>*2</sup>	$I_V$	$I_F=5mA$	23	30	55	mcd
Wavelength	$\lambda_D$	$I_F=5mA$	465	470	475	nm
Spectral Bandwidth	$\Delta\lambda$	$I_F=5mA$	-	25	-	nm
Viewing angle <sup>*3</sup>	$2\theta_{1/2}$	$I_F=5mA$	-	120	-	°

\*2 The luminous intensity  $I_V$  is measured at the peak of the spatial pattern which may not be aligned with the mechanical axis of the LED package.

\*3  $\theta_{1/2}$  is the off-axis where the luminous intensity is 1/2 the peak intensity.

### ◆ Electrical Characteristics of the Zener Diode

Parameter	Condition	Min	Typ	Max	Unit
$V_F$	$I_F=10mA$	-	-	1.6	V
$I_R$	$V_R=5V$	-	-	1.0	$\mu A$

[Note] All products confirm to the listed minimum and maximum specifications for electric and optical characteristics, when operated at 20mA within the maximum ratings shown above. All measurements were made under the standardized environment of SSC.

(Tolerance :  $I_V \pm 10\%$ ,  $\lambda_D \pm 2nm$ ,  $V_F \pm 0.1V$ )

Rev. 00

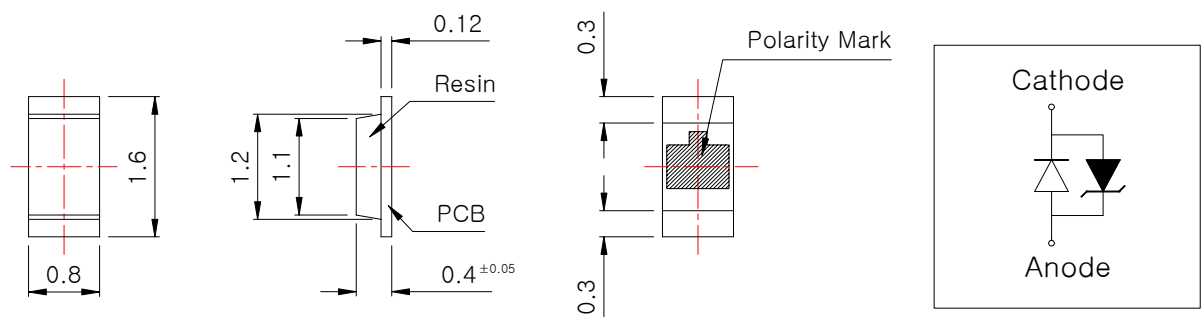
September 2008

www.ZLED.com

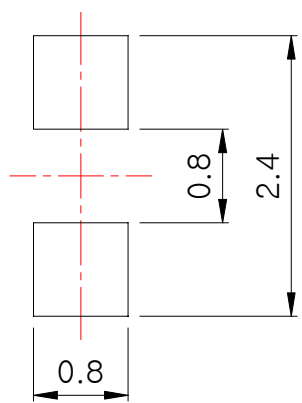
Document No. : SSC-QP-7-07-24 (Rev.00)

### 3.Outline Dimension

( Tolerance:  $\pm 0.1$ , Unit: mm )



#### \* Recommended solder Pattern



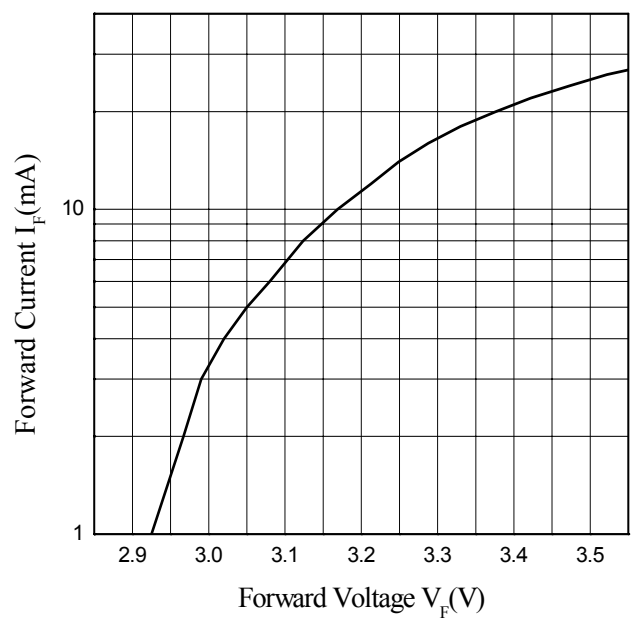
#### \* MATERIALS

PARTS	MATERIALS
Package	BT_Resin
Encapsulating Resin	Epoxy
Electrodes	Au Plating Copper Alloy

### 4. Electro-Optical characteristic Diagram

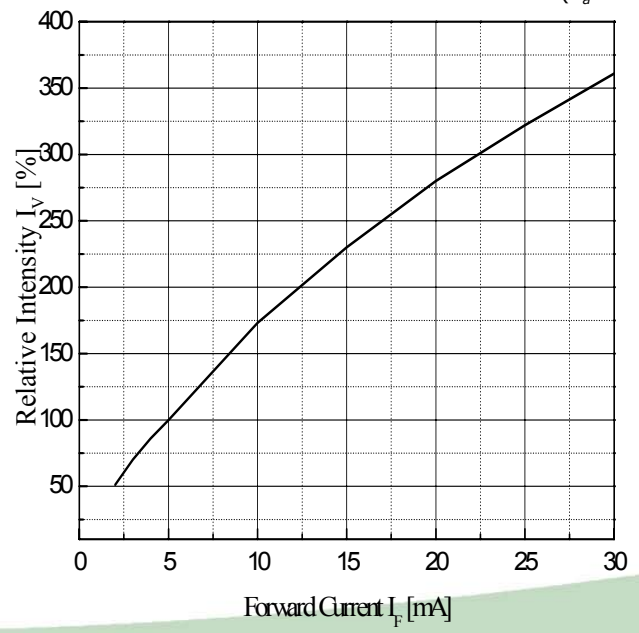
#### Forward Current vs. Forward Voltage (per die)

( $T_a=25\text{ }^\circ\text{C}$ )

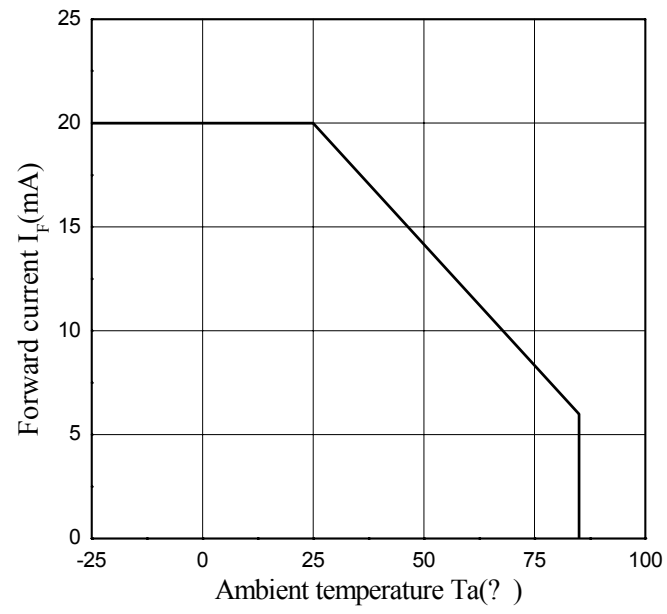


#### Relative Luminous Intensity vs Forward Current

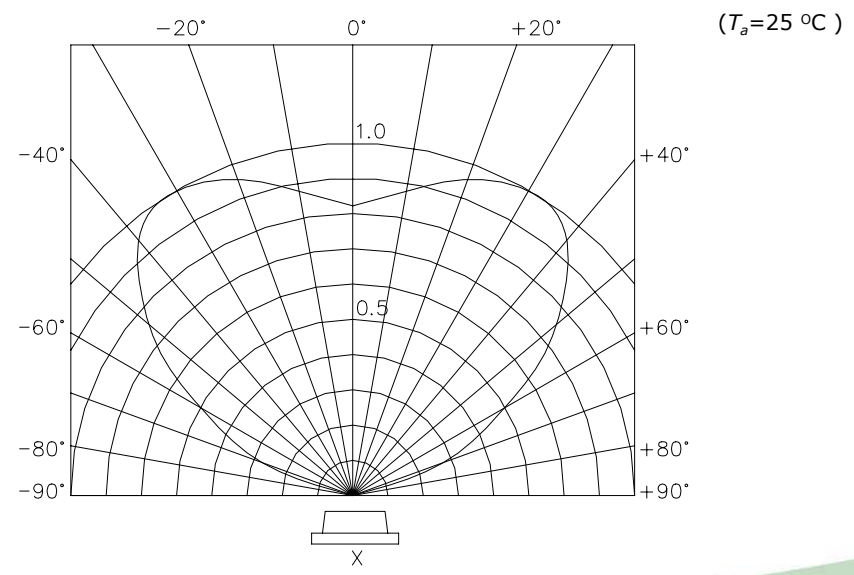
( $T_a=25\text{ }^\circ\text{C}$ )



### Ambient Temperature vs. Allowable Forward Current



### Radiation Diagram



## 5. Rank Division

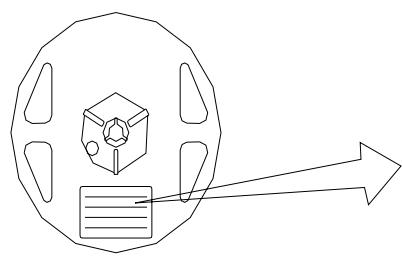
$I_V$ [mcd]	$V_F$ [V]	$\lambda_D$ [nm]	BIN
at $I_F=5$ [mA]	at $I_F=5$ [mA]	at $I_F=5$ [mA]	
23~38(C)	2.6~2.8(B)	465 ~470(B)	CBB
23~38(C)	2.8~3.0(C)	465 ~470(B)	CCB
23~38(C)	3.0~3.2(D)	465 ~470(B)	CDB
38~55(D)	2.6~2.8(B)	465 ~470(B)	DBB
38~55(D)	2.8~3.0(C)	465 ~470(B)	DCB
38~55(D)	3.0~3.2(D)	465 ~470(B)	DDB
23~38(C)	2.6~2.8(B)	470 ~475 (C)	CBC
23~38(C)	2.8~3.0(C)	470 ~475 (C)	CCC
23~38(C)	3.0~3.2(D)	470 ~475 (C)	CDC
38~55(D)	2.6~2.8(B)	470 ~475 (C)	DBC
38~55(D)	2.8~3.0(C)	470 ~475 (C)	DCC
38~55(D)	3.0~3.2(D)	470 ~475 (C)	DDC





● Reel Packing Structure

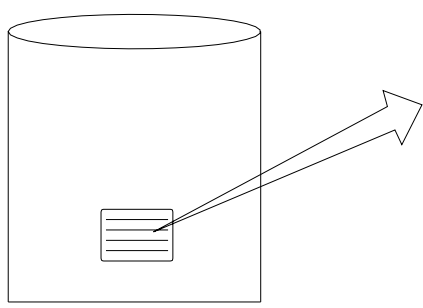
Reel



#####  
P/N : #####  
제품명 : SSC-THB105-69  
Lot No #####  
수량 : 4000



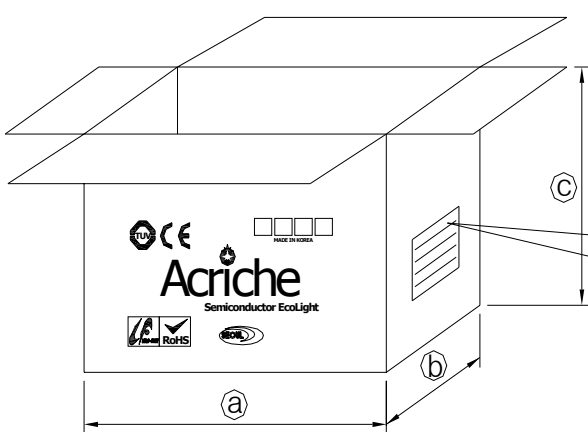
Aluminum Vinyl Bag



#####  
P/N : #####  
제품명 : SSC-THB105-69  
Lot No #####  
수량 : 4000



Outer Box



\*Material : Paper (SW3B(B))

TYPE	SIZE(mm)		
	(a)	(b)	(c)
7 inch	245	220	142

CHIP LED

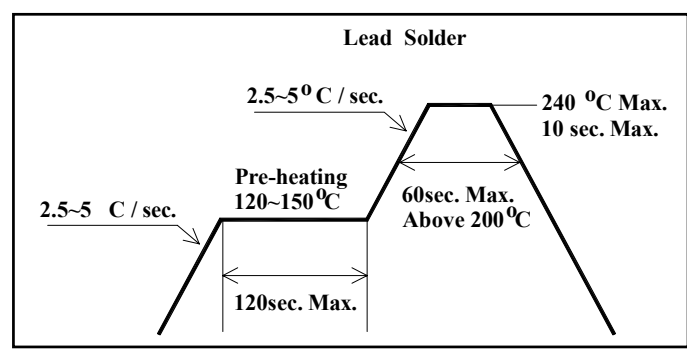
PART : SSC-THB105-69  
CODE : \_\_\_\_\_  
Q'Y' : 40,000EA  
LOT NO : \_\_\_\_\_  
DATE : \_\_\_\_\_

SEOUL SEMICONDUCTOR CO.,LTD

## 7. Soldering

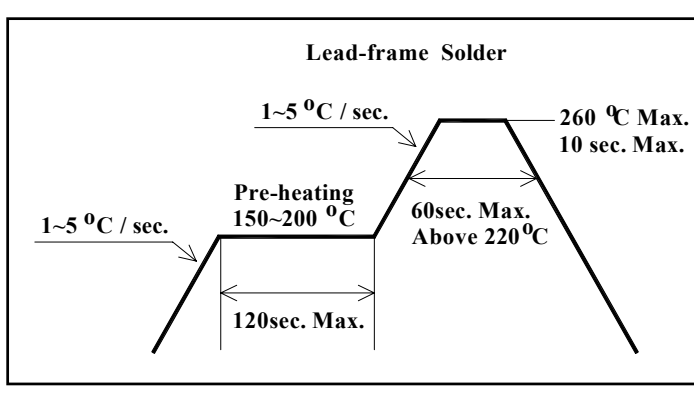
### (1) Lead Solder

Lead Solder	
Pre-heat	120~150°C
Pre-heat time	120 sec. Max.
Peak-Temperature	240°C Max.
Soldering time Condition	10 sec. Max.



### (2) Lead-Free Solder

Lead Free Solder	
Pre-heat	150~200°C
Pre-heat time	120 sec. Max.
Peak-Temperature	260°C Max.
Soldering time Condition	10 sec. Max.



### (3) Hand Soldering conditions

Do not exceed 3 seconds at maximum 280°C under soldering iron.

### (4) The encapsulated material of the LEDs is silicone.

Precautions should be taken to avoid the strong pressure on the encapsulated part.

So when using the chip mounter, the picking up nozzle that does not affect the silicone resin should be used.

Note : In case that the soldered products are reused in soldering process, we don't guarantee the products.

## 8. Precaution for use

### (1) Storage

In order to avoid the absorption of moisture, it is recommended to store in a dry box (or a desiccator) with a desiccant. Otherwise, to store them in the following environment is recommended.

Temperature : 5°C ~30°C Humidity : maximum 65%RH

### (2) Attention after open.

LED is correspond to 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°C Humidity : less than 30%

(3) In the 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°C.

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

(5) Quick cooling shall be avoided.

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

(7) Anti radioactive ray design is not considered for the products.

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

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

(10) 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.

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

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

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