

DATE OF ISSUE : 2005. 07. 21

# SPECIFICATION

MODEL : SLSNNWH834TS

WHITE FLASH LED

CUSTOMER : \_\_\_\_\_

PRELIMINARY

*SAMSUNG ELECTRO-MECHANICS CO., LTD.*

314. MAETAN3-DONG, YEONGTONG-KU,  
SUWON-SI, KYUNGKI-DO, KOREA, 442-743

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## ■ Product Outline

### 1) Feature

1. Mini-Mold type ( 3.0 \* 3.0 \* t 0.9mm ),
2. Beam Angle (  $\Delta\theta$  : 120 ° )
3. GaN/Al<sub>2</sub>O<sub>2</sub> Chip & Long Time Reliability

### 2) Applications

- Mobile Camera Phone, Flashlight for Camera.....

## ■ Absolute Maximum Rating

- Operation Forward Current Per Chip..... 37.5 mA
- Peak Pulsed Forward Current Per Chip..... 100 mA  
(Duty 1/10 Pulse Width 10msec)
- Reverse Voltage ..... 5V
- Operating Temperature Range ( T<sub>opr</sub> ) ..... -35°C ~ 85°C
- Storage Temperature Range ( T<sub>stg</sub> ) ..... -40°C ~ 100°C

## ■ Characteristics

( Ta : 25°C )

	Rank	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward Voltage	S	V <sub>F</sub>	2.9	3.6	4.0	V	I <sub>F</sub> =150mA, 75mA/circuit
Reverse Current		I <sub>R</sub>	-	-	100	μA	V <sub>R</sub> = 5V

### Chromaticity Coordinate

Rank	x				y				Condition
A	0.277	0.264	0.287	0.300	0.235	0.267	0.310	0.277	I <sub>F</sub> =150mA, 30mA/chip
B	0.300	0.287	0.320	0.324	0.277	0.310	0.360	0.311	
C	0.324	0.320	0.355	0.350	0.311	0.360	0.390	0.343	

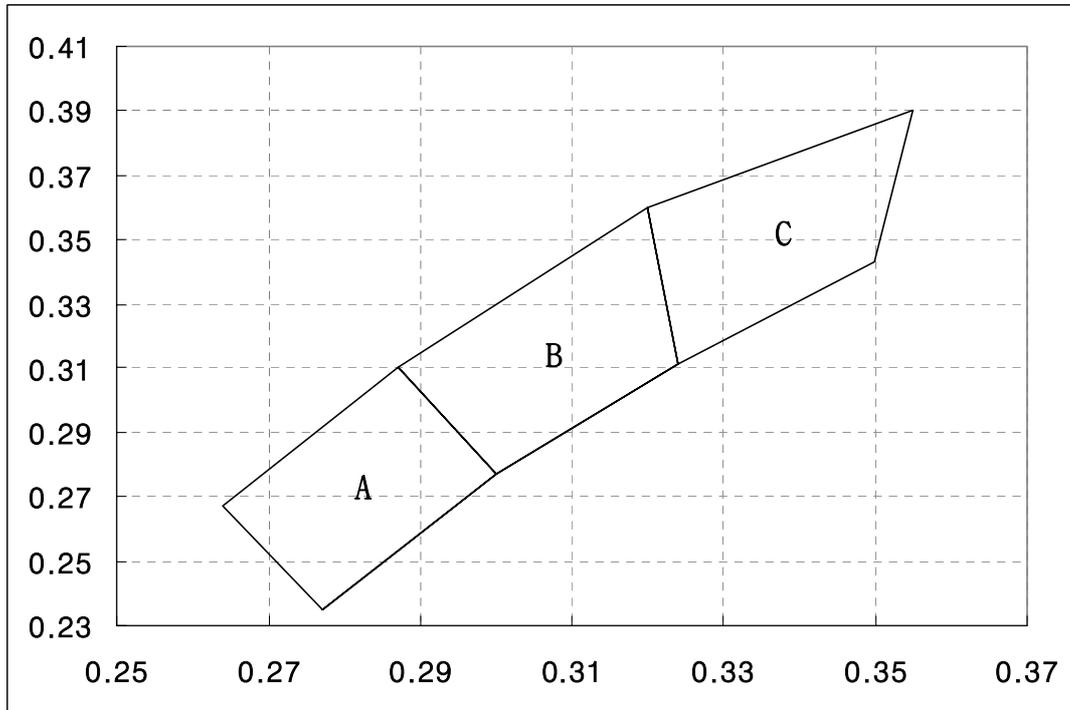
### Luminous Intensity

Rank	Symbol	Min.	Typ.	Max.	Unit	Conditions
S	I <sub>v</sub>	5	7	8.5	cd	I <sub>F</sub> =150mA, 75mA/circuit
-	I <sub>v</sub>	-	12	14	cd	I <sub>F</sub> =300mA, 150mA/circuit (2sec-On/2sec-OFF)

\* Tolerance : V<sub>F</sub>:±0.1, I<sub>v</sub>:±10%, x,y:±0.02

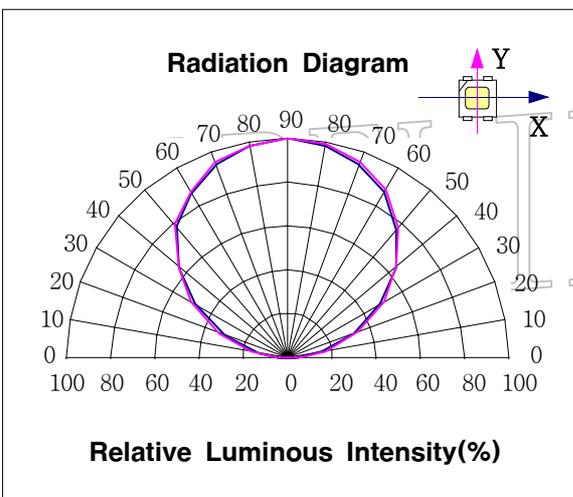
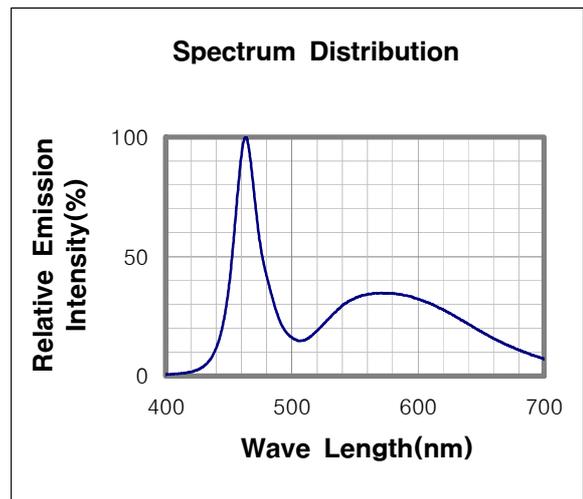
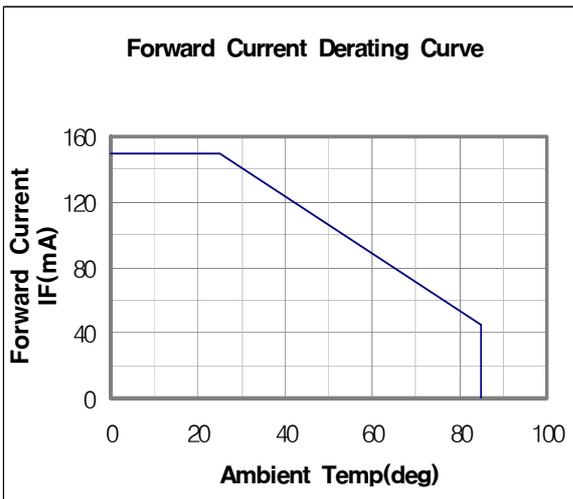
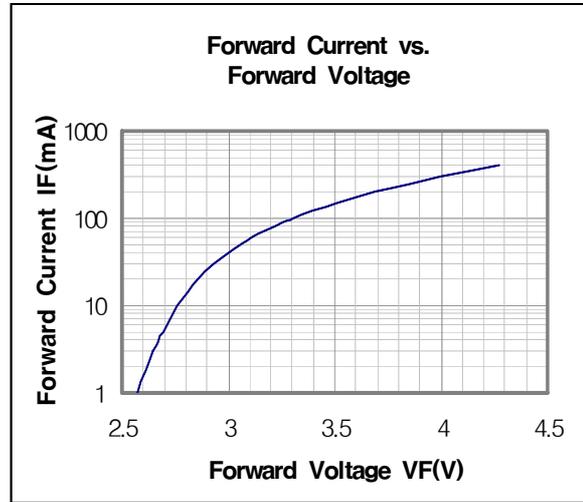
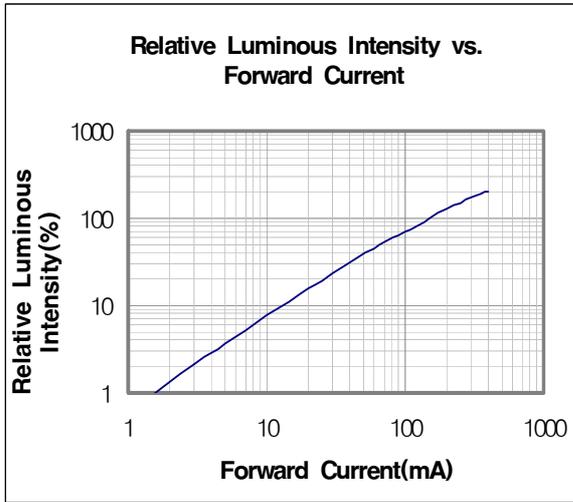
\* Luminous intensity measuring equipment : CAS140 B

## ■ Chromaticity Diagram



PRELIMINARY

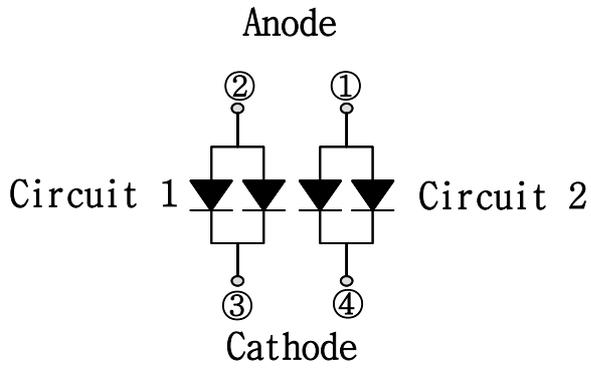
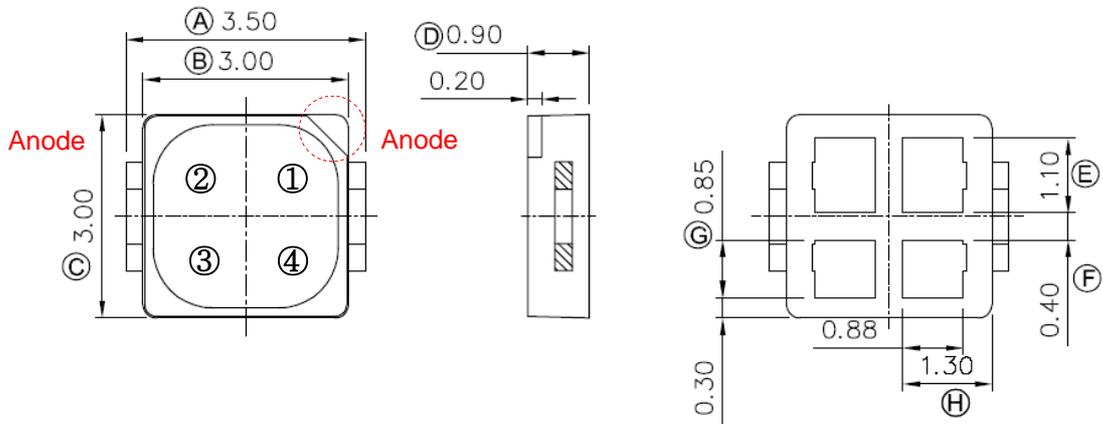
## Typical Characteristics Graph



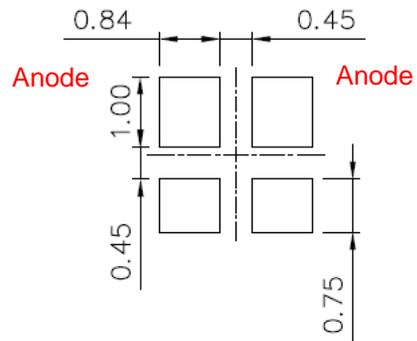
MINIARY

## Outline Drawing and Dimension

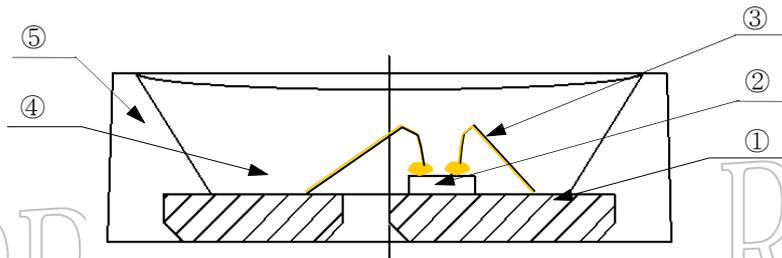
Unit:mm  
Tolerance:±0.1



Circuit



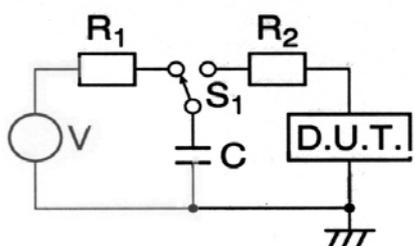
Land Layout



NUMBER	ITEM	MATERIAL
①	FRAME	Copper Frame(Silver Plated)
②	LED CHIP	GaN/Al <sub>2</sub> O <sub>3</sub>
③	WIRE	Gold Wire
④	RESIN	Resin + Phosphor
⑤	PACKAGE	Heat-resistant Polymer

## Reliability Test Items and Conditions

### 1) Test Items and Results

Test Item	Test Conditions	Test Hours/Cycles	Sample No
Room Temperature life test	25°C±3°C, DC150 mA	500 h	0/50
High Temperature humidity life test	60°C±3°C, 95%±2%RH, DC85 mA	500 h	0/50
High Temperature life test	85°C±3°C, DC45 mA	500 h	0/50
Low Temperature life test	-30°C±3°C, DC150 mA	500 h	0/50
High Temperature Storage	Ta=100°C±3°C	500 h	0/50
Low Temperature Storage	Ta=-40°C±3°C	500 h	0/50
High Temperature humidity Storage	60°C±3°C, 95%±2%RH	500 h	0/50
Thermal Shock	-40°C ~ 100°C 0.5 h      0.5 h	100 cycles	0/50
Temperature humidity Cycle	25°C ~ 65°C ~ -10°C 24hrs/1cycle, 95%RH	10 cycles	0/50
Reflow (Pb-free)	Peak 260±5°C for 10sec	3 times	0/22
ESD(HBM)	 <p>-R1:10MΩ , R2:1.5KΩ , C:100pF</p>	5 times	0/5
On/Off test	50°C±3°C, 95%±2%RH, DC150 mA, On/2sec, Off/2sec	108000 cycles	0/50

## 2) Criteria for Judging the Damage

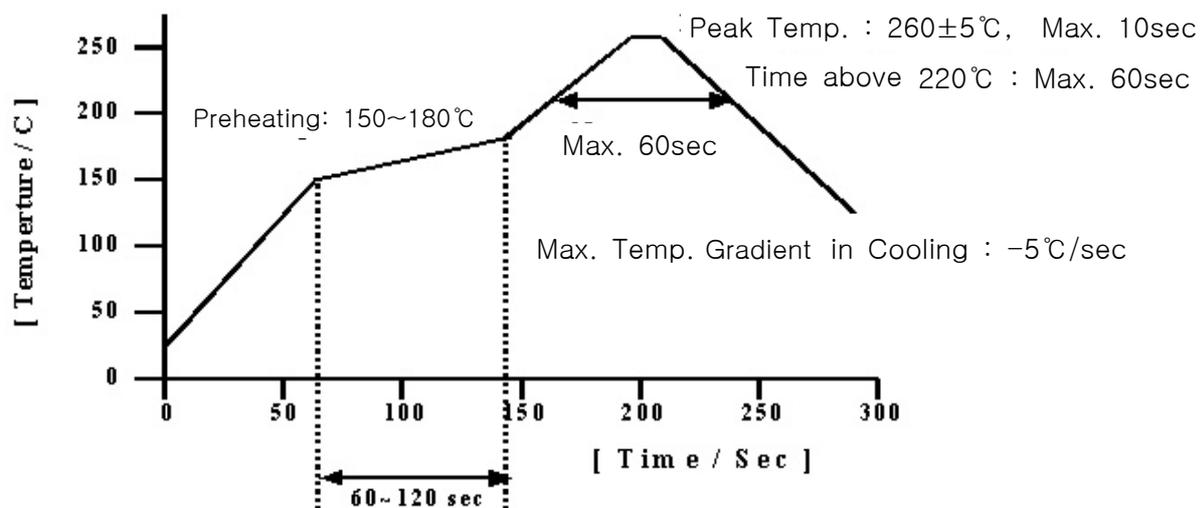
Item	Symbol	Test Condition	Limit	
			Min	Max
Forward Voltage	$V_F$	$I_F=150\text{mA}$ , $75\text{mA/circuit}$	–	U.S.L.*1.2
Luminous Intensity	$I_V$	$I_F=150\text{mA}$ , $75\text{mA/circuit}$	L.S.L.*0.5	–
Reverse Current	$I_R$	$V_R=5\text{V}$	–	U.S.L.*2.0

\* USL : Upper Standard Level    LSL : Lower Standard Level

## ■ Solder Conditions

### 1) Reflow Conditions ( Pb Free )

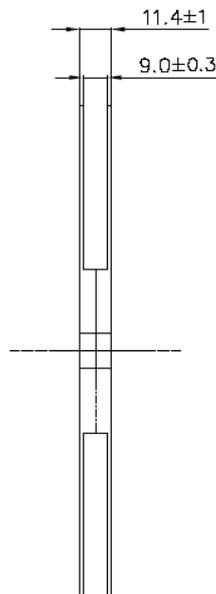
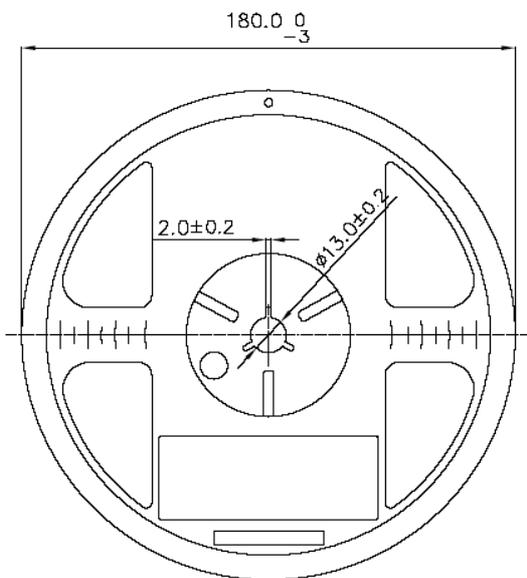
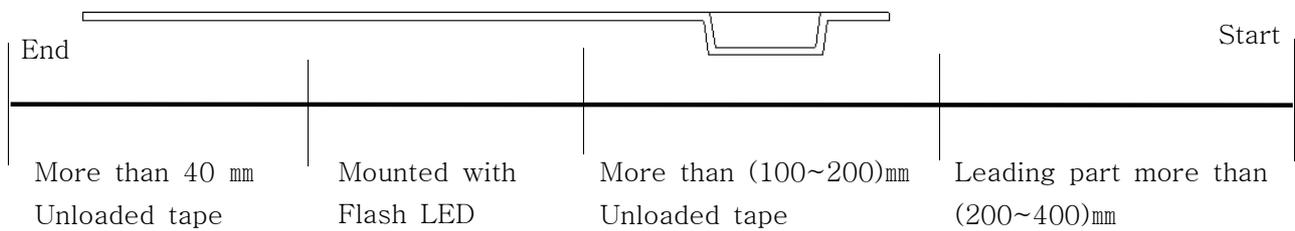
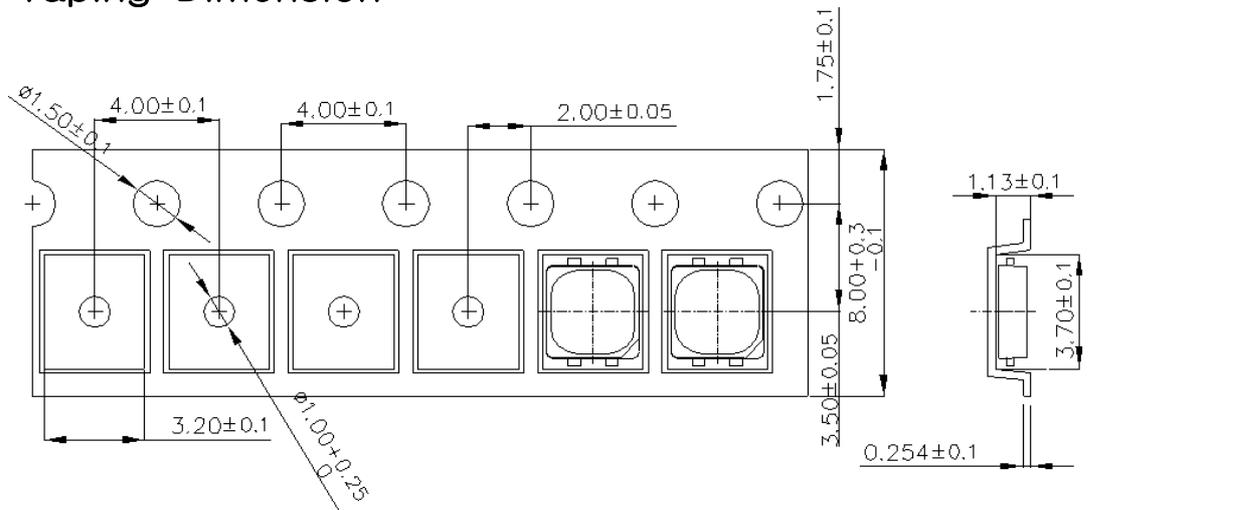
Reflow Frequency : 2 times max.



### 2) For Manual Soldering

Not more than 5 seconds @MAX300°C, under soldering iron.

## ■ Taping Dimension

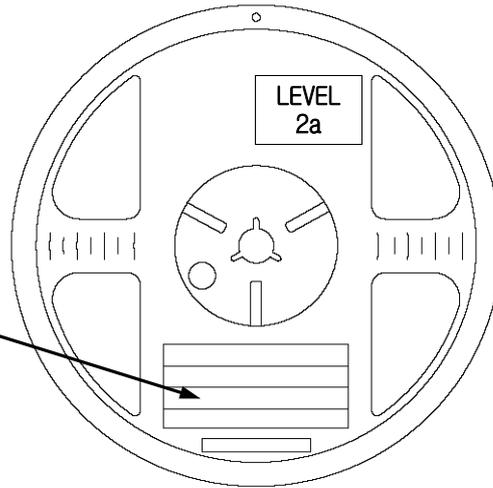
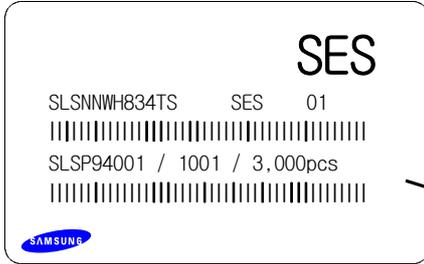


Tolerance :  $\pm 0.2$  , Unit:mm

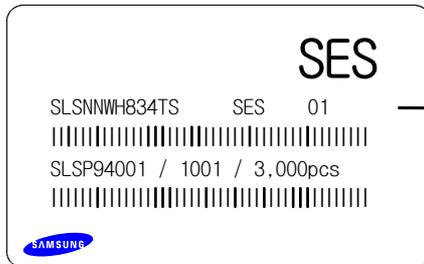
- (1) Quantity : The quantity/reel to be 3000pcs.
- (2) Cumulative Tolerance : Cumulative tolerance/10 pitches to be  $\pm 0.2$  mm
- (3) Adhesion Strength of Cover Tape : Adhesion strength to be 0.1–0.7N when the cover tape is turned off from the carrier tape at 10°C angle to be the carrier tape.
- (4) Packaging : P/N, Manufacturing data code no. and quantity to be indicated on a damp proof package.

# Reel Packing Structure

## Reel



## Aluminum Vinyl Bag

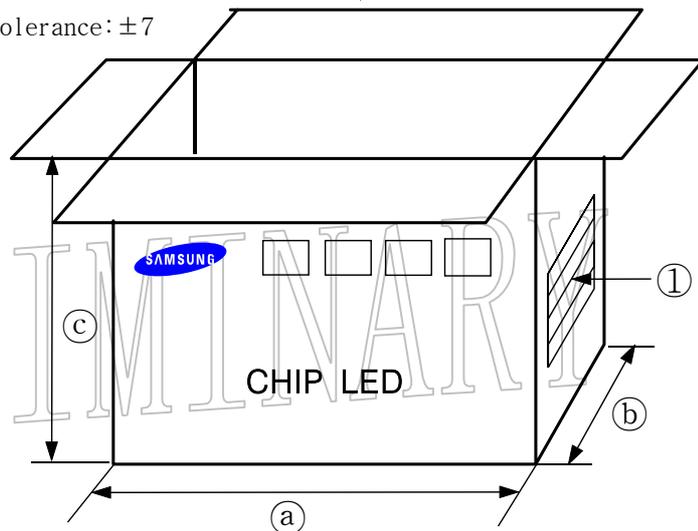


Material : Paper(SW3B(B)) Unit:mm

Tolerance: ±7

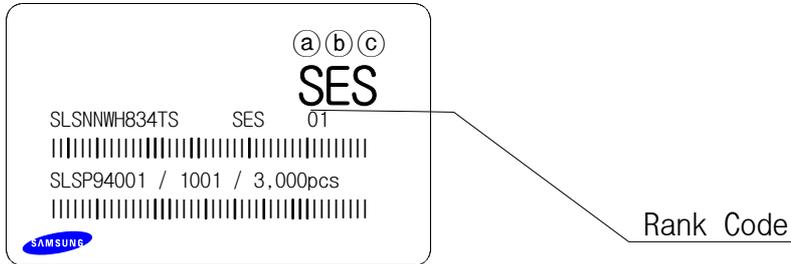
TYPE	SIZE(mm)		
	Ⓐ	Ⓑ	Ⓒ
7inch	245	220	142

### ① SIDE



구분	알루미늄 팩	겉박스	Reel
표면저항	10 <sup>9</sup> Ω	10 <sup>10</sup> Ω	10 <sup>7</sup> Ω 이하
재질	Al 제전 봉투	종이	PS
정전기발생량 @23℃, 50%RH	0.00kV	0.00kV	0.00kV

## ■ Label Structure



- Ⓐ : VF Rank
- Ⓑ : Chromaticity Coordinate Rank
- Ⓒ : IV Rank

PRELIMINARY

## ■ Precaution for Use

1. 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.
2. When the LEDs are illuminating, operating current should be decided after considering the ambient maximum temperature.
3. LEDs must be stored to maintain a clean atmosphere.  
If the LEDs are stored for 3 months or more after being shipped from Samsung Electro-Mechanics, a sealed container with a nitrogen atmosphere should be used for storage.
4. The LEDs must be used within seven days after opening the moisture proof packing. Repack unused Products with anti-moisture packing, fold to close any opening and then store in a dry place.
5. The appearance and specifications of the product may be modified for improvement without notice.
6. This LEDs is sensitive to the static electricity and surge. It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs.

If over voltage which exceeds the absolute maximum rating is applied to LEDs, it will cause damage LEDs and result in destruction.

Damaged LEDs will show some unusual characteristics such as leak current remarkably increase, turn-on voltage becomes lower and the LEDs get unlighted at low current.

## ■ Hazard Substance Analysis

### SGS Testing Korea Co., Ltd.

#18-34, Sanbon-dong, Gunpo-city, Kyunggi-do, Korea 435-040  
Tel : 031-4285-777, Fax : 031-427-2374/9, InterNet>http://www.sgslab.co.kr

**Test Report**

No. F690501/LF-CTS100590

Date : May 25, 2005

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SAMSUNG ELECTRO-MECHANICS CO., LTD.  
314, Maetan3-dong, Yeongtong-gu, Suwon-city  
Kyunggi-do, Korea

The Following merchandise was submitted and identified by the clients as : -

Type of Product : FLASH LED (3030-0.9T)  
SGS File No : G-49/2005-2304  
Buyer : SAMSUNG ELECTRO-MECHATRONICS CO., LTD.  
Sample Receiving Date : May. 18, 2005  
Test Performing Date : May. 19, 2005  
Test Performed : SGS Testing Korea tested the sample which ws selected by applicant with following result.  
Test Results : For further detail, please refer to following page.

KHJ/ysh

SGS Testing Korea Co., Ltd.



Jason Han / Director

PRELIMINARY

# SGS Testing Korea Co., Ltd.

#18-34, Sanbon-dong, Gunpo-city, Kyunggi-do, Korea 435-040  
Tel : 031-4285-777, Fax : 031-427-2374/9, InterNet>http://www.sgslab.co.kr

## Test Report

No. F690501/LF-CTS100590

Date : May 25, 2005

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### Heavy Metal

Test Items	Unit	Test Method	MDL	Results
Cadmium (Cd)	mg/kg	USEPA 3050B, ICP-AES	0.5	n. d.
Lead (Pb)	mg/kg	USEPA 3050B, ICP-AES	5	n. d.
Mercury (Hg)	mg/kg	USEPA 3052, ICP-AES	2	n. d.
Hexavalent Chromium (Cr VI)	mg/kg	USEPA 3060A, UV-Vis	1	n. d.

### Flame Retardants

Test Items	Unit	Test Method	MDL	Results
<b>Polybrominated Biphenyls (PBBs)</b>				
Bromobiphenyl	mg/kg	With reference to USEPA 3450C. Analysis was performed by GC/MS.	5	n. d.
Dibromobiphenyl	mg/kg		5	n. d.
Tribromobiphenyl	mg/kg		5	n. d.
Tetrabromobiphenyl	mg/kg		5	n. d.
Pentabromobiphenyl	mg/kg		5	n. d.
Hexabromobiphenyl	mg/kg		5	n. d.
Heptabromobiphenyl	mg/kg		5	n. d.
Octabromobiphenyl	mg/kg		5	n. d.
Nonabromobiphenyl	mg/kg		5	n. d.
Decabromobiphenyl	mg/kg		5	n. d.
<b>Polybrominated Diphenyl Ethers (PBDEs)</b>				
Bromodiphenyl ether	mg/kg	With reference to USEPA 3450C. Analysis was performed by GC/MS.	5	n. d.
Dibromodiphenyl ether	mg/kg		5	n. d.
Tribromodiphenyl ether	mg/kg		5	n. d.
Tetrabromodiphenyl ether	mg/kg		5	n. d.
Pentabromodiphenyl ether	mg/kg		5	n. d.
Hexabromodiphenyl ether	mg/kg		5	n. d.
Heptabromodiphenyl ether	mg/kg		5	n. d.
Octabromodiphenyl ether	mg/kg		5	n. d.
Nonabromodiphenyl ether	mg/kg		5	n. d.
Decabromodiphenyl ether	mg/kg		5	n. d.

Note : n. d. = Not detected

MDL = Method Detection Limit

\*\*\*\*\* End \*\*\*\*\*

