

DATE OF ISSUE : 2006. 03. 01

SPECIFICATION

MODEL : SLHNNWWL32ANT

HIGH POWER LED PKG -SUNNIX

CUSTOMER : _____

SAMSUNG ELECTRO-MECHANICS CO.,LTD.
314, MAETAN3-DONG, YEONGTONG-GU,
SUWON, GYUNGGI-DO,KOREA,442-743

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■ Product Outline

1) Feature

1. Plastic Molded L/Frame type (7.0mm * 7.0mm, t=1.4mm)
2. Beam Angle ($\Delta\theta$: 115 °)
3. High Power/Brightness Chip & Long Time Reliability

2) Applications

- Automotive, Mobile, Illumination etc.

■ Absolute Maximum Rating^{1),2)}

- Operation Forward Current 350 mA
- Peak Pulsed Forward Current 400 mA
(Duty 1/10 Pulse Width 10msec)
- Thermal Resistance(Rth)³⁾ 10°C/W
- Operating Temperature Range (T_{opr}) -35°C ~ 85°C
- Storage Temperature Range (T_{stg}) -40°C ~ 100°C

■ Characteristics^{1),2)}

Electrical Characteristics

(Ta : 25°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	1.0	1.5	V	I _R =10mA

Chromaticity Coordinate

Rank	CCx				CCy				Condition
T	0.3700	0.4041	0.4370	0.3863	0.3322	0.3551	0.4310	0.4050	I _F =350mA
U	0.4041	0.4440	0.4880	0.4370	0.3551	0.3700	0.4490	0.4310	
V	0.4440	0.4980	0.5480	0.4880	0.3700	0.3694	0.4450	0.4490	

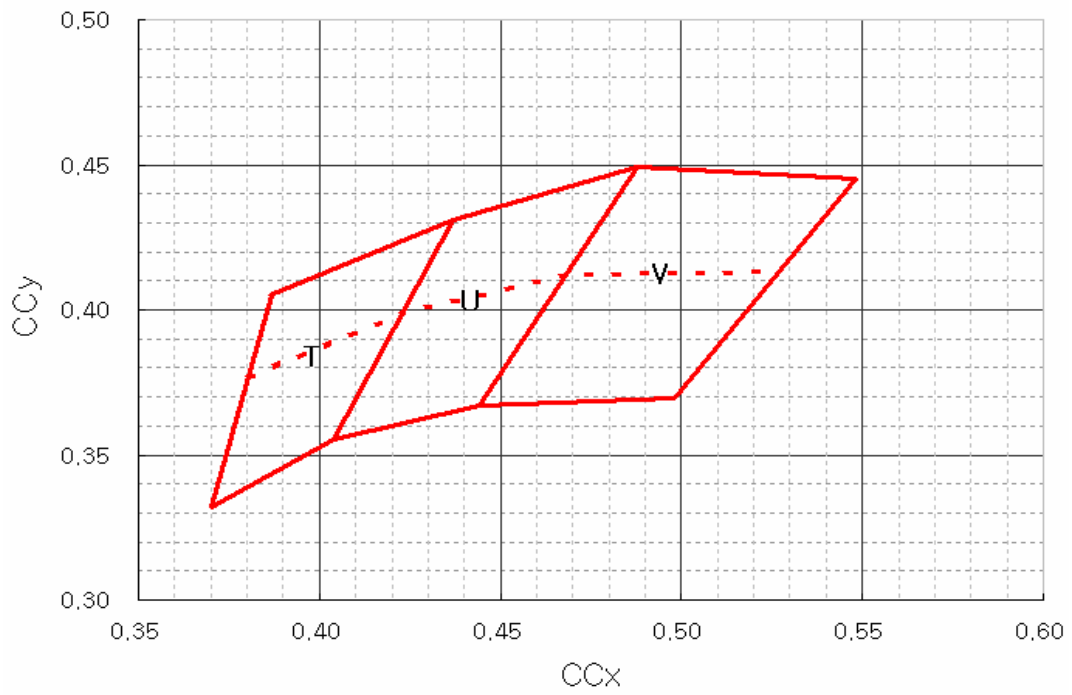
Luminous Flux

Rank	Symbol	Min.	Typ.	Max.	Unit	Conditions
D	Φ _v	15		20	lm	I _F =350mA
E	Φ _v	20		30	lm	
F	Φ _v	30		40	lm	
G	Φ _v	40		50	lm	

Remarks)

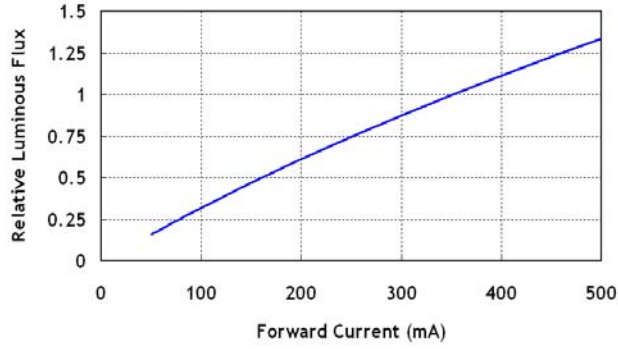
- 1) Tolerance : V_F : ±0.1, Φ_v : ±10%, CCx CCy : ±0.02
- 2) These specifications can be modified without any notices.
- 3) Proper thermal managements should be considered into a circuit design

■ Chromaticity Diagram

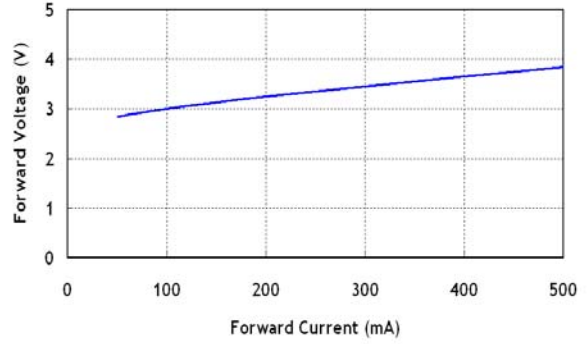


Typical Characteristics Graph

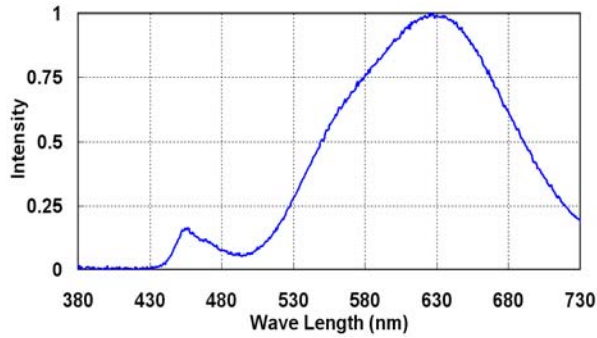
Relative Luminous Flux vs Forward Current



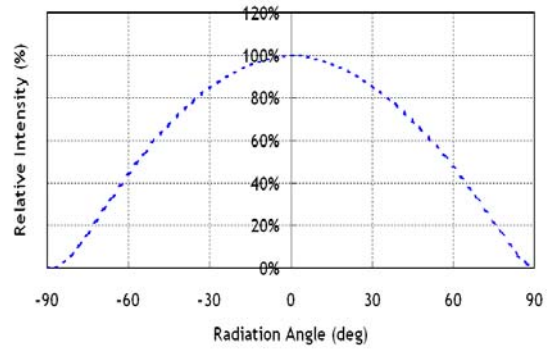
Forward Voltage vs Forward Current



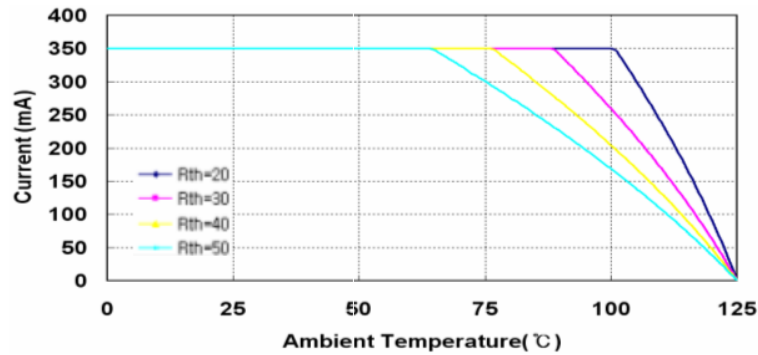
Spectrum Distribution



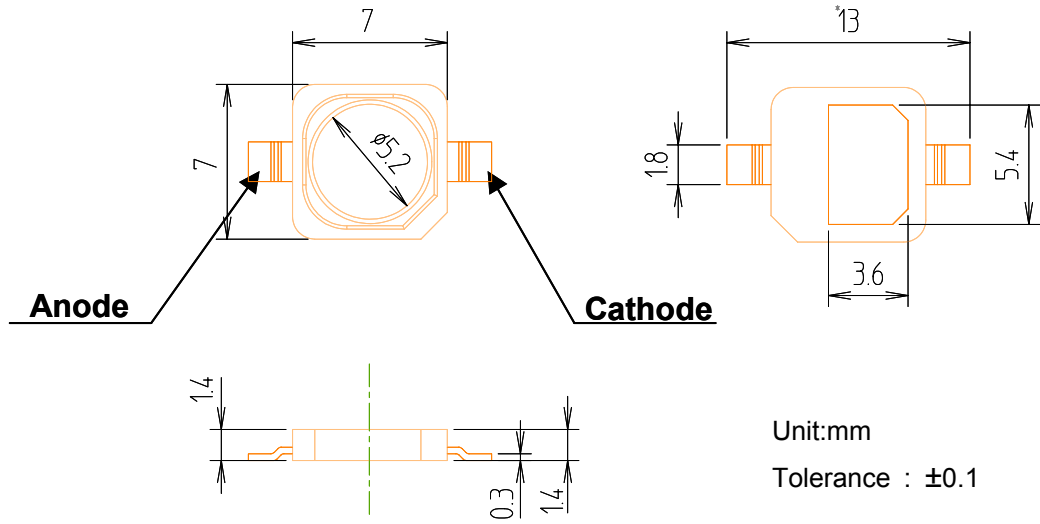
Radiation Diagram



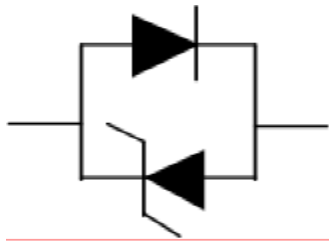
Maximum Current Derating Curve



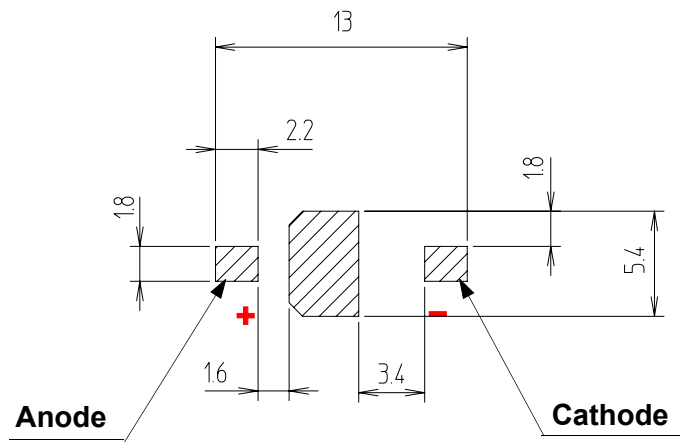
Outline Drawing and Dimension



Circuit

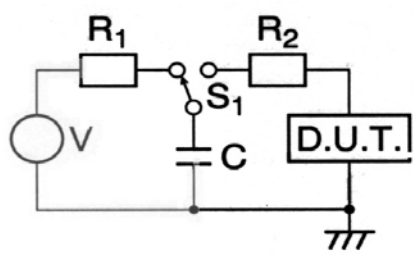


Solder Pattern for Surface Mount



■ Reliability Test Items and Conditions

1) Test Items

Test Item	Test Conditions	Test Hours/Cycles	Sample No
Room Temperature life test	25 °C, DC350 mA	1,000 h	22
High Temperature humidity life test	85 °C, 60 %RH, DC 350 mA	1,000 h	22
High Temperature life test	85 °C, DC 350 mA	1,000 h	22
Low Temperature life test	-40 °C, DC350 mA	1,000 h	22
High Temperature Storage	110 °C	1,000 h	11
Low Temperature Storage	-40 °C	1,000 h	11
Thermal Shock	-40 / 120 °C, each 30 min	200 cycles	22
Temperature humidity Cycle On/Off test	-40 / 85 °C, each 20 min, 100 min transfer Power On/off each 5 min, DC 350 mA	100 cycles	22
Reflow (Pb-Free)	Peak 260±5 °C for 10sec	3 times	11
ESD(HBM)	 <p>R1:10MΩ , R2:1.5KΩ , C:100pF</p>	3 times (± 5kV)	5

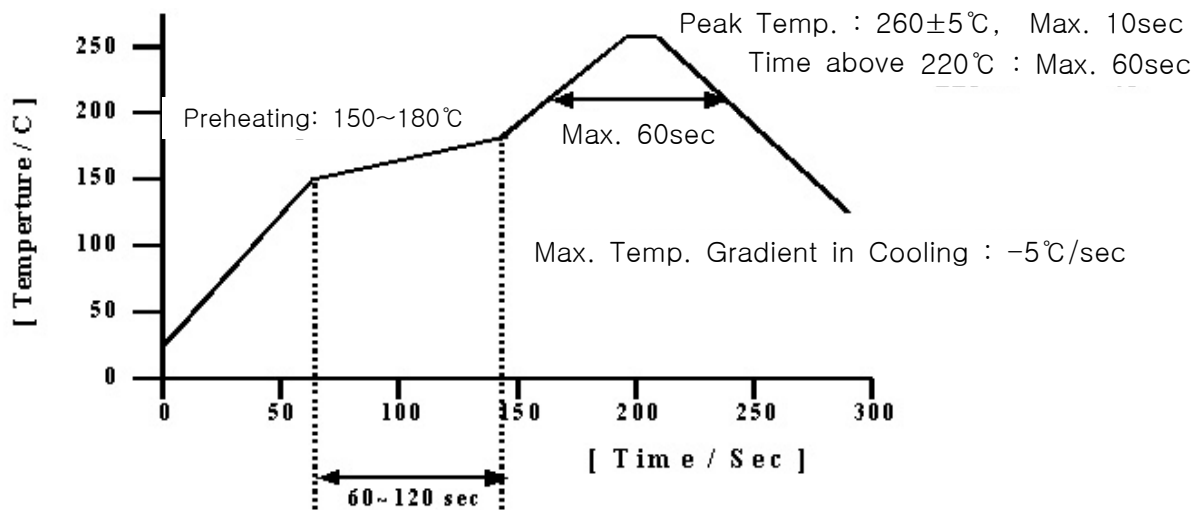
2) Criteria for Judging the Damage

Item	Symbol	Test Condition	Limit	
			Min	Max
Forward Voltage	V _F	I _F = 350 mA	-	U.S.L.*1.2
Luminous Flux	Φ _v	I _F = 350 mA	L.S.L.*0.5	-

* USL : Upper Standard Level LSL : Lower Standard Level

■ Solder Conditions

Reflow Frequency : 2 times max.

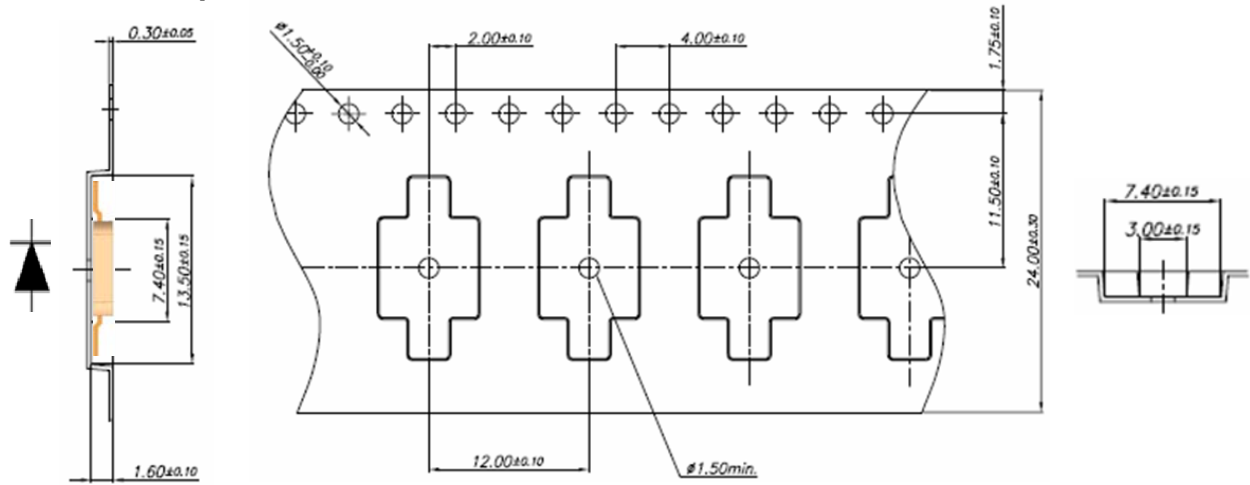


2) For Manual Soldering

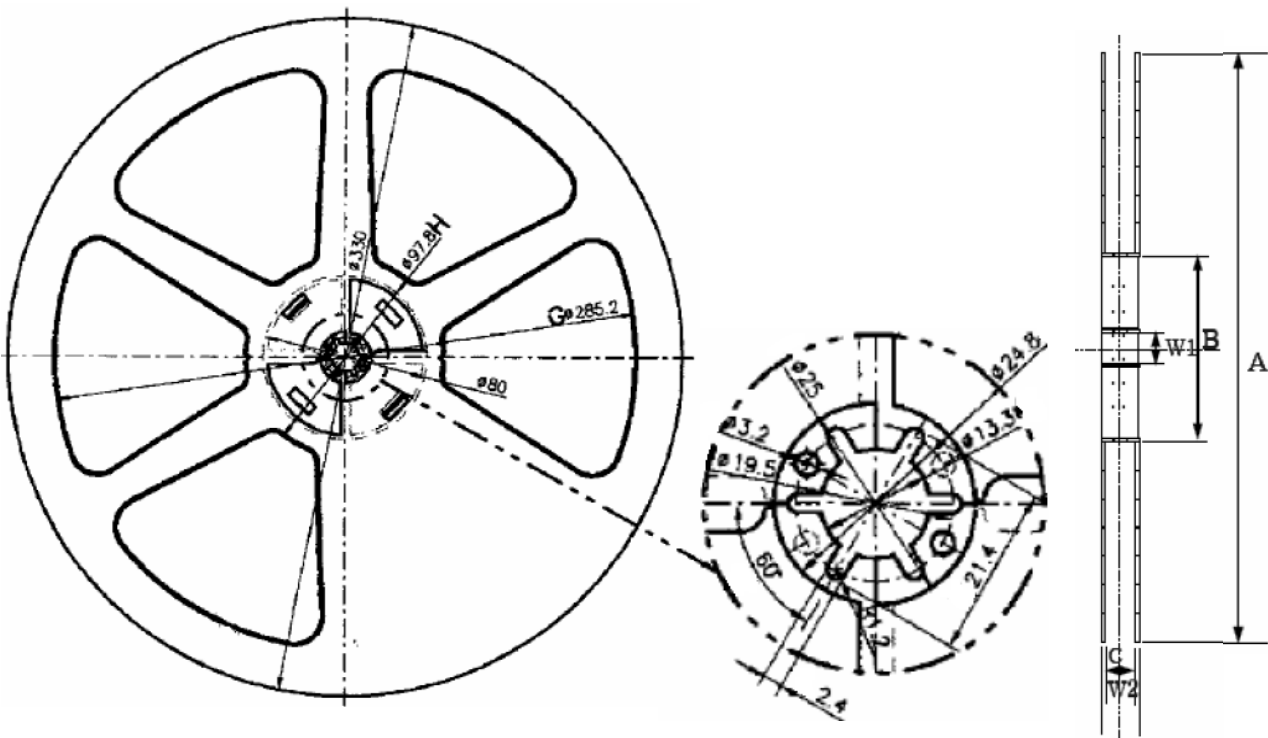
Not more than 5 seconds @MAX 300°C , under soldering iron.

■ Packing Standard

1. Carrier Tape



2. Reel

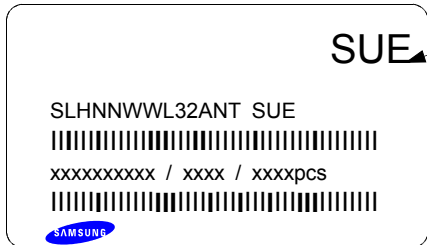


Symbol	A	B	C	W1	W2
Dimension(mm)	330 ± 1	80 ± 1	25 ± 0.5	$25 \begin{smallmatrix} +2.0 \\ -0 \end{smallmatrix}$	$29 \begin{smallmatrix} +2.0 \\ -0 \end{smallmatrix}$

- (1) Quantity : 3,000 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

3. Packing Order : Reel → Al Bag → Inner Box → Carton Box

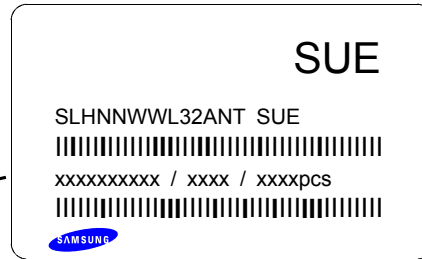
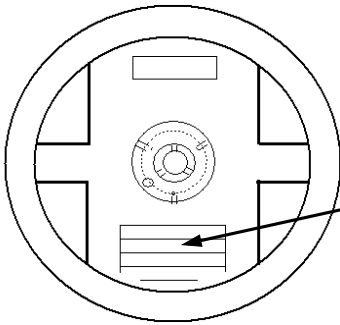
1) Label



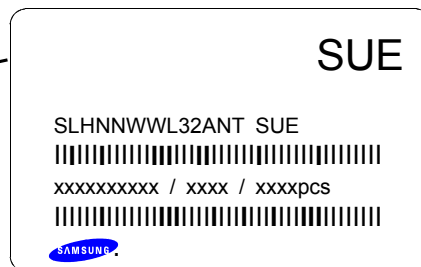
Rank Code

- S : Forward Voltage
- U : Chromaticity Coordinate Rank (CCT)
- E : Luminous Flux

2) Reel



3) Aluminum Vinyl Bag

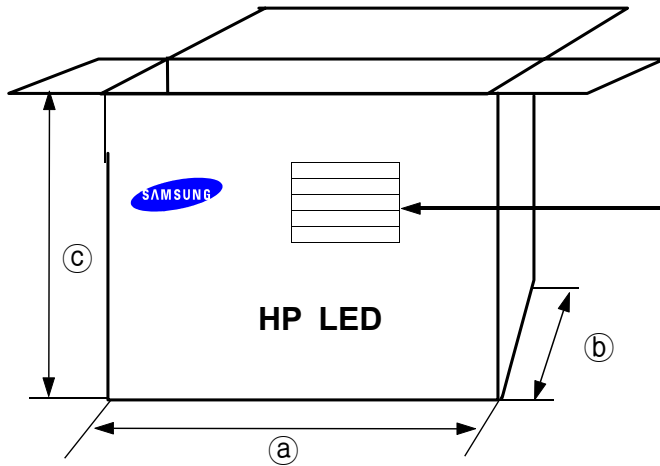


SUE

SLHNNWWL32ANT SUE
xxxxxxxx / xxxx / xxxxpcs

SAMSUNG

4) Inner Box



Material : Paper(SW3B(B))

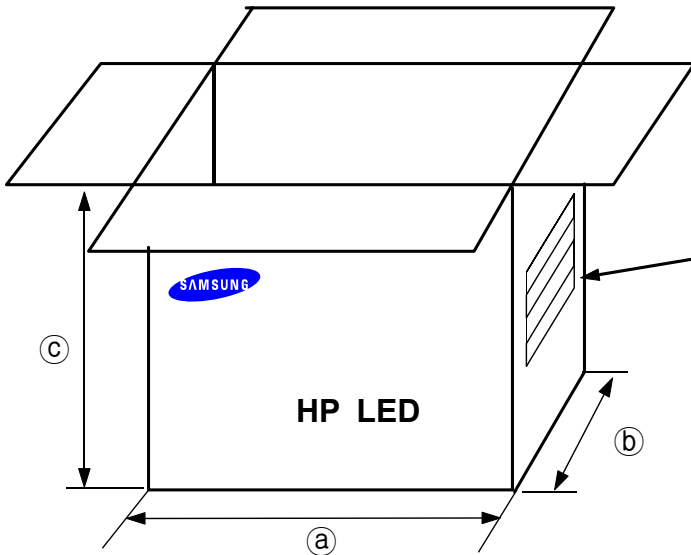
TYPE	SIZE(mm)		
	a	b	c
13inch	335	45	335

SUE

SLHNNWWL32ANT SUE
 |||
 xxxxxxxxxx / xxxx / xxxpcs
 |||



5) Carton Box



Material : Paper(SW3B(B))

TYPE	SIZE(mm)		
	a	b	c
13inch	350	350	350

SUE

SLHNNWWL32ANT SUE
 |||
 xxxxxxxxxx / xxxx / xxxpcs
 |||



■ 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 3months 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.



Test Report No. F890501MLF-CT&AYA07-06028

Date: March 13, 2007

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To: SAMSUNG ELECTRO-MECHANICS CO., LTD.
314, Maetan3-dong
Yeongtong-gu
Suwon-city
KYUNGGI-DO 442-373
Korea

The following merchandise was submitted and identified by the client as :

Product Name : High Power LED(warm white)
SGS File No. : AYAD7-06028
Received Date : March 07, 2007
Test Performing Date : March 08, 2007
Test Performed : SGS Testing Korea tested the sample(s) selected by applicant with following results
Test Results : For further details, please refer to following page(s)

Pluto Kim
Monet Jeong
Jully Oh
Jenny Jung
/Testing Person

SGS Testing Korea Co. Ltd.

Jeff Jang / Chemical Lab Mgr

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Sample No. : AYAD7-06028.001
 Sample Description : High Power LED(warm white)
 Item No./Part No. : SLHNNWW32ANT

Heavy Metals

Test Name	Unit	Test Method	MDL	Results
Cadmium (Cd)	mg/kg	US EPA 8050B(1996), US EPA 8010B(1996), ICP	0.5	N.D.
Lead (Pb)	mg/kg	US EPA 8050B(1996), US EPA 8010B(1996), ICP	5	N.D.
Mercury (Hg)	mg/kg	US EPA 8052(1996), US EPA 8010B(1996), ICP	2	N.D.
Hexavalent Chromium (Cr VI)	mg/kg	US EPA 8060A(1996), US EPA 7100A(1992), UV	1	N.D.

Flame Retardants-PBBs/PBDEs

Test Name	Unit	Test Method	MDL	Results
Monobromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Dibromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Tribromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Tetrabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Pentabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Hexabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Heptabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Octabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Nonabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Decabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Monobromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Dibromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Tribromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Tetrabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Pentabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Hexabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Heptabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Octabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Nonabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Decabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.

- NOTE: (1) N.D. = Not detected.(<MDL)
 (2) ppm = mg/kg
 (3) MDL = Method Detection Limit
 (4) - = No regulation
 (5) * = Qualitative analysis (No Unit)
 (6) Negative = Undetectable / Positive = Detectable

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*** End ***

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