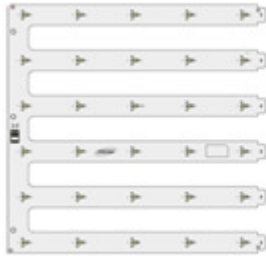




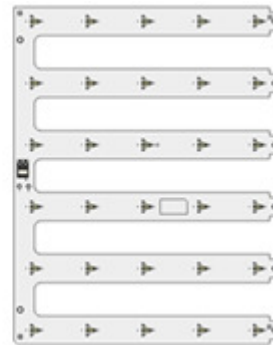
**THE DATASHEET OF  
SI-B8R112250WW**



## SPECIFICATION



< Finger-SQ30B >



< Finger-RT30B >

| Finger-30LED      |                            |                    |                         |
|-------------------|----------------------------|--------------------|-------------------------|
| <b>Model Name</b> | Finger-SQ30B, Finger-RT30B |                    |                         |
| <b>Type</b>       | 15V, 700mA                 |                    |                         |
| <b>Parts No.</b>  | <b>CCT</b>                 | <b>Square Type</b> | <b>Rectangular Type</b> |
|                   | 3000 K                     | SI-B8V112250WW     | SI-B8V112280WW          |
|                   | 3500 K                     | SI-B8U112250WW     | SI-B8U112280WW          |
|                   | 4000 K                     | SI-B8T112250WW     | SI-B8T112280WW          |
|                   | 5000 K                     | SI-B8R112250WW     | SI-B8R112280WW          |
|                   | 6500 K                     | SI-B8P112250WW     | SI-B8P112280WW          |

**SAMSUNG ELECTRONICS CO.,LTD.**  
**SAN #24 NONGSEO-DONG, GIHEUNG-GU,**  
**YONGIN-SI, GYEONGGI-DO, 446-711, KOREA**



# LED Module

Rev. No

Page

2.1

2 / 12

## Revision History

| Rev.No | Date         | Page | Revision  | Remark |
|--------|--------------|------|---|--------|
| 1.0    | July, 2013   | -    | The first preliminary specification is established. Total 13 pages  | -      |
| 1.5    | January 2014 | -    | Merged two types, square/rectangular<br>Updated specification.<br>Total 12 pages                                    | -      |
| 2.0    | March 2014   | -    | Release specification<br>Total 12 pages   | -      |
| 2.1    | March 2014   | 4    | The information of ESD has been added.  | -      |
|        |              | 4    | The Fundamental specification has been added. (Type Classification, Eye Protection, Working Voltage for Insulation) | -      |
|        |              | 6, 7 | The Appearance drawing has been changed.  | -      |
|        |              | 10   | Added certification.  | -      |



## Contents

|   |                           |    |
|---|---------------------------|----|
| 1 | Products and Applications | 4  |
| 2 | Specification             | 4  |
| 3 | Structure and Assembly    | 6  |
| 4 | Approbation               | 10 |
| 5 | Packing                   | 10 |
| 6 | Precautions In Handling   | 11 |

## 1. Products and Application

This specification defines general specification and performance for Lens Attached LED module. Samsung LAM products target to replace conventional fluorescent lamps as T5, T8 and so on with LED solutions. Due to transferring LED, new luminaire transferred to LED can take more energy saving and longer life-time.

In special, Samsung has competitiveness in middle-power solutions. This module uses LM561B. Middle power solutions provide more homogeneous and higher efficient lights.

## 2. Specification

| No.  | Item                           | Specifications   | Unit | Remark              |
|------|--------------------------------|--|------|---------------------|
| 2-1  | Dimension                      | SQ : 259(L) x 250(W) x 5.8(h)<br>RT : 216(L) x 273(W) x 7.4(h) | mm   | Tolerance:±0.5mm    |
| 2-2  | Weight                         | SQ : 93<br>RT : 85   | g    | Tolerance:±10%      |
| 2-3  | Rated lifetime                 | >50,000  | hour | L70B50<br>@Tc = 75℃ |
| 2-4  | Ingress Protection             | N/A  | -    | -                   |
| 2-5  | Operating Temperature          | Ta = - 20 ~ 50   | ℃    | -                   |
| 2-6  | Storage Temperature            | Ta = - 40 ~ 80   | ℃    | -                   |
| 2-7  | ESD                            | 8  | KV   | -                   |
| 2-8  | Type Classification            | · Built-in module  |      |                     |
| 2-9  | Eye Protection                 | · Risk group 1   |      |                     |
| 2-10 | Working Voltage for Insulation | · 25 [V]   |      |                     |



# LED Module

Rev. No

Page

2.1

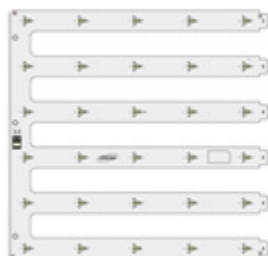
5 / 12

| No.  | Item                  | Specifications |        |      |             |      | Unit | Remark                                   |
|------|-----------------------|----------------|--------|------|-------------|------|------|--|
|      |                       | Sym.           | Model  | Min. | Nom.        | Max. |      |  |
| 2-11 | Luminous flux         | $\Phi_v$       | 3000K  | 1207 | 1340        | 1496 | lm   | @700mA,<br>Tp = 35°C                     |
|      |                       |                | 3500K  | 1228 | 1370        | 1522 |      |  |
|      |                       |                | 4000K  | 1271 | <b>1440</b> | 1574 |      |  |
|      |                       |                | 5000K  | 1313 | 1490        | 1627 |      |  |
|      |                       |                | 6500K  | 1228 | 1440        | 1522 |      |  |
| 2-12 | Efficiency            | LPW            | 3000K  | -    | 126         | -    | lm/W | @700mA<br>Tp = 35°C                      |
|      |                       |                | 3500K  | -    | 128         | -    |      |  |
|      |                       |                | 4000K  | -    | <b>134</b>  | -    |      |  |
|      |                       |                | 5000K  | -    | 139         | -    |      |  |
|      |                       |                | 6500K  | -    | 134         | -    |      |  |
| 2-13 | SDCM                  | -              | ~4000K | -    | 3           | -    | step | LED to LED,<br>MacAdam<br>@ initial time |
|      |                       |                | 5000K~ | -    | 4           | -    |      |  |
| 2-14 | Color Rendering Index | CRI            | -      | 80   | -           | -    | Ra   | -  |
| 2-15 | CCT                   | -              | 3000K  | 2852 | 2970        | 3094 | K    | @700mA<br>Tp = 35°C                      |
|      |                       |                | 3500K  | 3189 | 3337        | 3493 |      |  |
|      |                       |                | 4000K  | 3762 | 3958        | 4181 |      |  |
|      |                       |                | 5000K  | 4709 | 5016        | 5369 |      |  |
|      |                       |                | 6500K  | 6130 | 6563        | 7083 |      |  |
| 2-16 | Operating Current     | Iop            | -      | -    | 700         | 900  | mA   | -  |
| 2-17 | Operating Voltage     | Vdc            | -      | 13.8 | 15.3        | 16.8 | V    | @700mA,<br>Tp = 35°C                     |
| 2-18 | Power Consumption     | -              | -      | -    | 10.7        | -    | W    | @700mA,<br>Tp = 35°C                     |

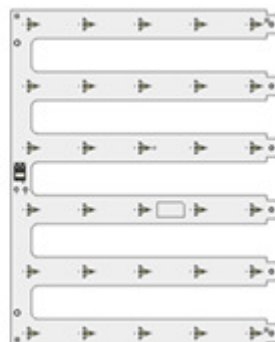
※ Measurement tolerance of luminous flux becomes  $\pm 7\%$  in the value,  
measurement tolerance of Vf becomes  $\pm 0.3V$  in the value  
and the measurement tolerance of the color coordinates is  $\pm 0.005$ .

## 3. Structure and Assembly

### 3-1. Appearance



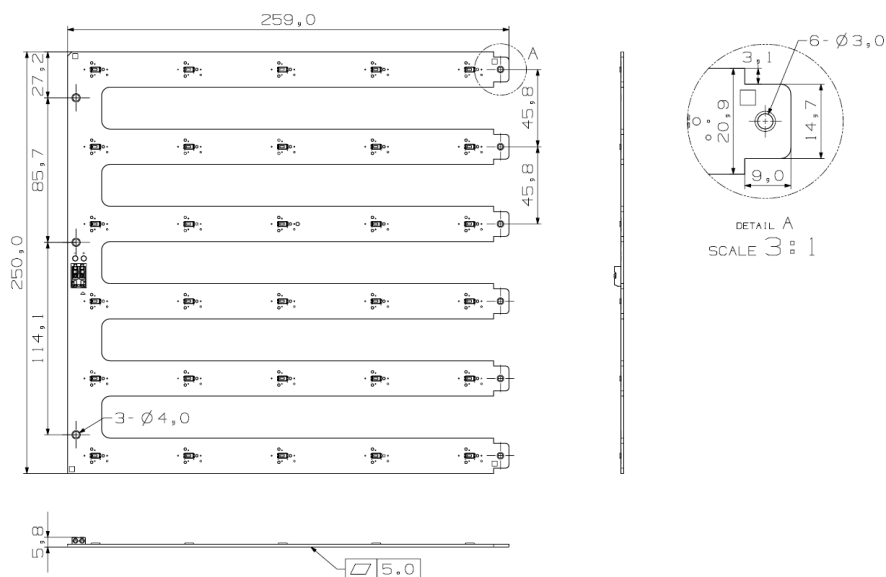
<Finger-SQ30B>



<Finger-RT30B>

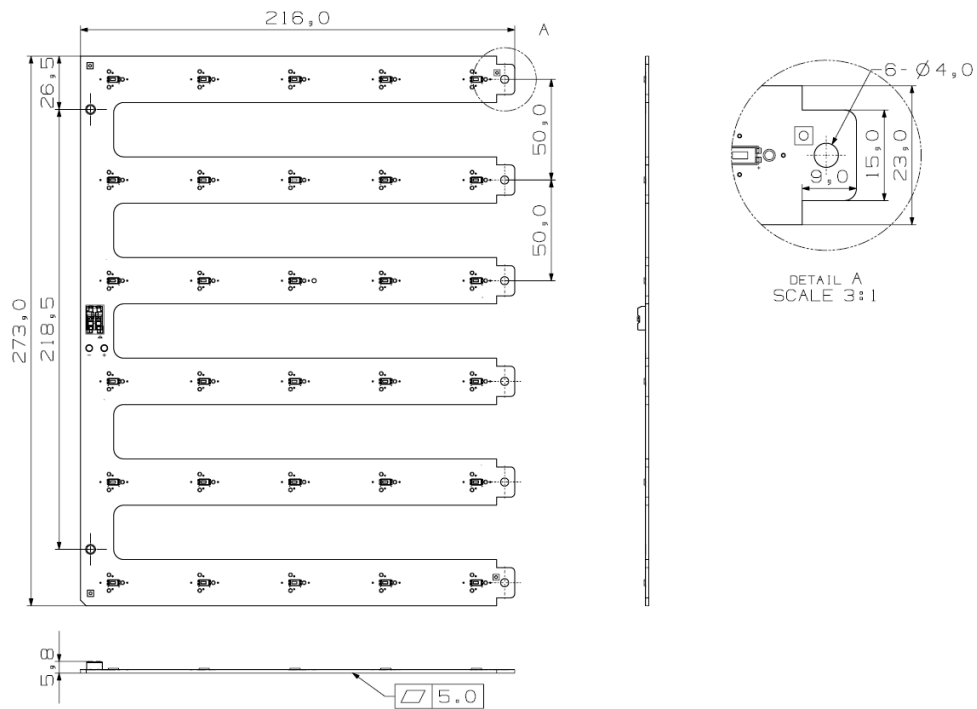
### 3-2. Dimension

#### (1) Finger-SQ30B



| Item |                  | Specifications |
|------|------------------|----------------|
| L    | Length of PCB    | 259.0 ± 0.5 mm |
| W    | Width of PCB     | 250.0 ± 0.5 mm |
| H1   | Thickness of PCB | 1.6 ± 0.1 mm   |
| H2   | Height of PCBA   | 5.8 ± 0.2 mm   |

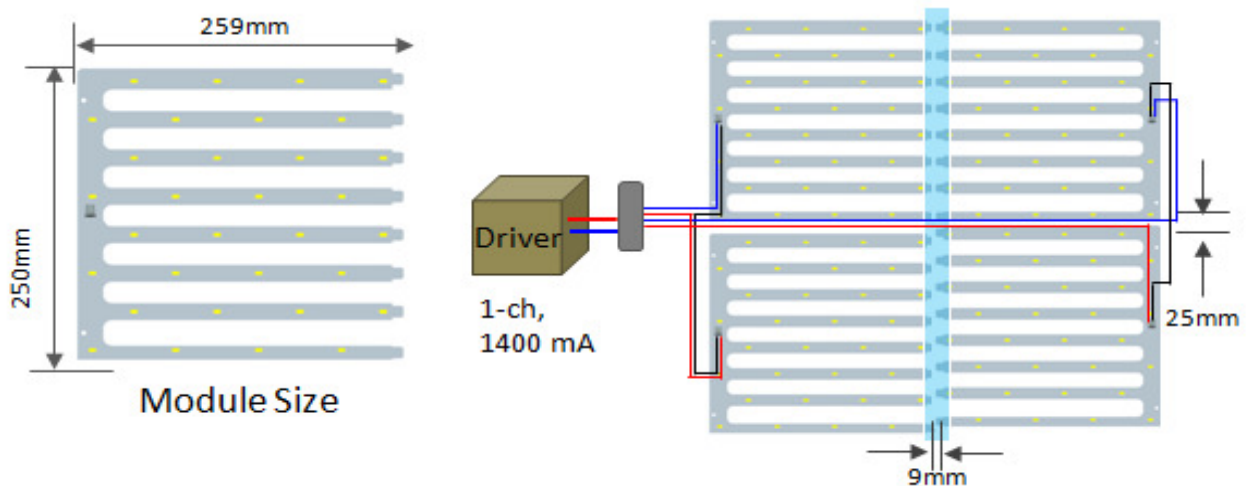
## (2) Finger-RT30B



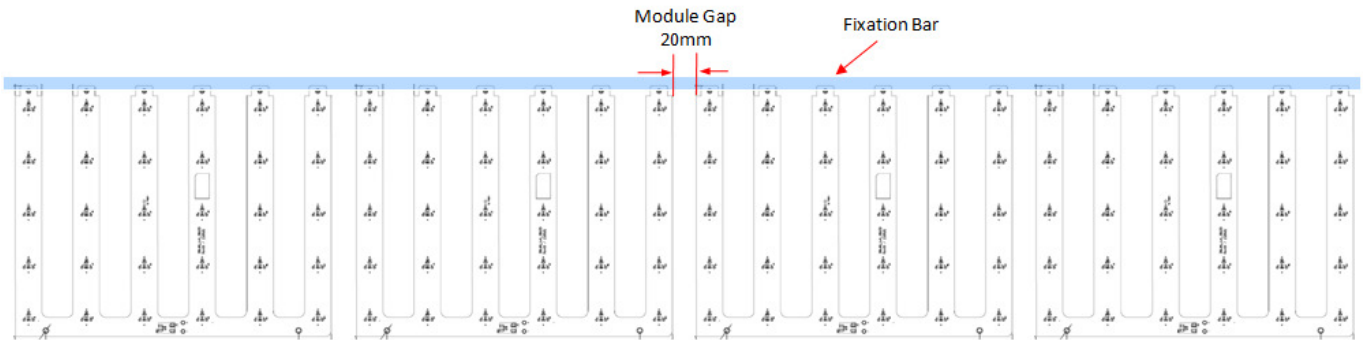
| Item |                  | Specifications |
|------|------------------|----------------|
| L    | Length of PCB    | 216.0 ± 0.5 mm |
| W    | Width of PCB     | 273.0 ± 0.5 mm |
| H1   | Thickness of PCB | 1.6 ± 0.1 mm   |
| H2   | Height of PCBA   | 5.8 ± 0.2 mm   |

## 3-3. Assembly

(1) Design case of 2x2 (600mm x 600mm) luminaire, 4 set of LAM-SQ30B



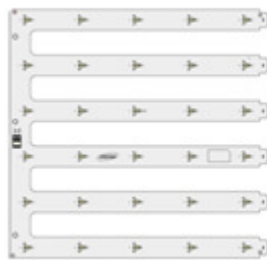
(2) Design case of 1x4 (300mm x 1200mm) luminaire, 4 set of LAM-RT30B



(3) Fixation by Hook



### 3-4. Structure



<Finger-SQ30B>

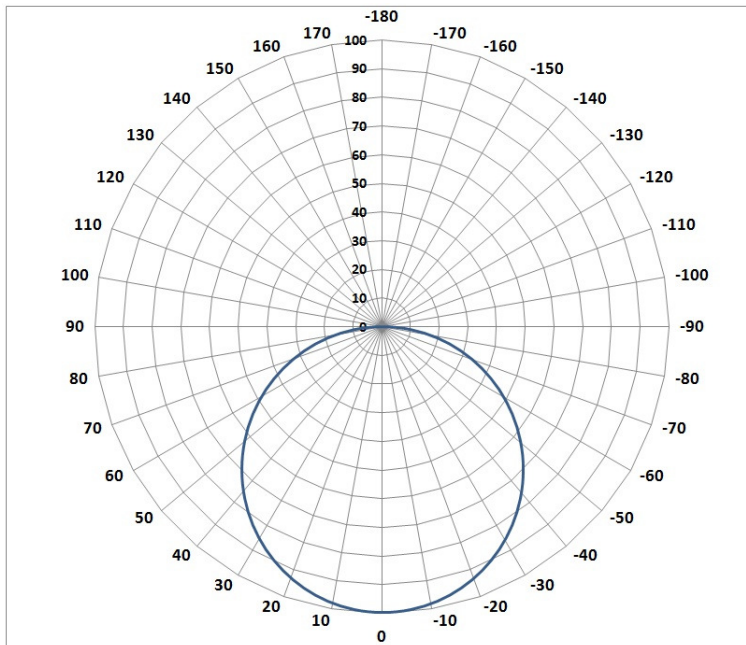


<Finger-RT30B>

| No.             |     | Item      | Specifications                           |
|-----------------|-----|-----------|--|
| Module Assembly | 3-1 | LED       | LM561B : Middle Power LED 30 ea          |
|                 | 3-2 | PCB       | Material : Copper, Solder mask and Epoxy |
|                 | 3-3 | Connector | AWG 24-18, Strip Length 6-7 mm           |

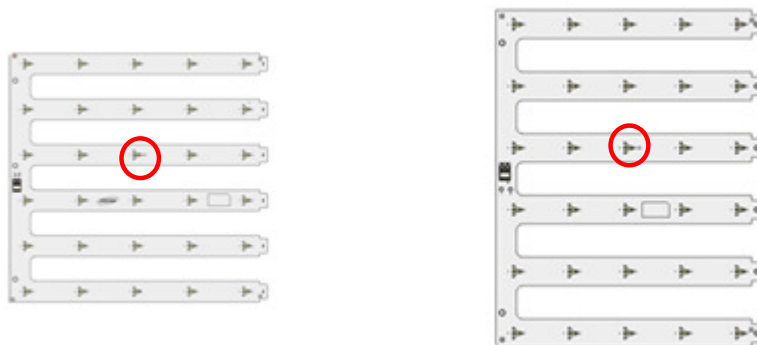
## 3-5. Light Distribution

(1) Polar Intensity Diagram : Beam Angle  $115 \pm 5 [^\circ]$



## 3-6. Thermal Management

(1) Tc Point : See the below red mark.



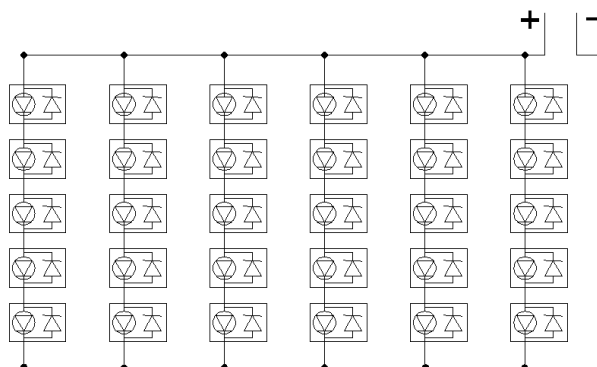
(2) Tc\_life : Max temperature to reach 50,000 hours

- Tc\_life =  $75^\circ\text{C}$  for  $>50,000$  @ 700mA (L70B50)

(3) Tc\_max : Max temperature to operate

- Tc\_max =  $75^\circ\text{C}$

## 3-7. Circuit Schematic



## 4. Approbation

| Item                            | Compliant to          | Result / Remark                        |
|---------------------------------|-----------------------|--|
| General                         | Eye safety : IEC62471 | LM561B LED                             |
| Hazardous Substance & Materials | RoHS, Reach           | Declared                               |
| Certification                   | CE                    | EN 62031:2008/A1:2013<br>EN 62471:2008 |
|                                 | ENEC                  | EN 62031:2008/A1:2013<br>EN 62471:2008 |

## 5. Packing

### 5-1 Dimension & Module Q'ty

#### (1) Finger-SQ30B

| Item      | 1 box              | 1 pallet                 |
|-----------|--------------------|--------------------------|
| Dimension | 365 x 332 x 295 mm | 1100 x 800 x 145 mm      |
| Q'ty      | 60 modules         | 1800 modules<br>30 boxes |

#### (2) Finger-RT30B

| Item      | 1 box              | 1 pallet                 |
|-----------|--------------------|--------------------------|
| Dimension | 375 x 280 x 295 mm | 1200 x 800 x 145 mm      |
| Q'ty      | 60 modules         | 2400 modules<br>40 boxes |

## 6. Precautions In Handling

- 1) LED Lighting for white light are devices which are materialized by combining white LEDs.  
The color of white light can differ a little unusually to diffuser plate(sign-board panel).
- 2) Handling
  - Don't drop the unit and don't give the unit any shocks.
  - Don't storage the Module in a dusty place or room.
  - Don't take the unit to pieces.
- 3) Cleaning
  - This LED Module should not be used in any type of fluid such as oil, organic solvent, etc.
  - It is recommended that IPA(Isopropyl Alcohol) be used as a solvent for cleaning the LED Module.
  - When using other solvents, it should be confirmed beforehand whether the solvents will dissolve the package and the resin or not. Freon solvents should not be used to clean the LEDs because of worldwide regulations. Do not clean the LED Module by the ultrasonic.
  - Before cleaning, a pre-test should be done to confirm whether any damage to the LED Lighting will occur.
- 4) Static Electricity
  - Static electricity or surge voltage damages the LED Lighting.
- 5) Discoloration
  - VOCs (volatile organic compounds) may be occurred by adhesives, flux, hardener or organic additives which is used in luminaires (fixture) and LED silicone bags are permeable to it. It may lead a discoloration when LED expose to heat or light.
  - This phenomenon can give a significant loss of light emitted(output) from the luminaires(fixture).
  - In order to prevent these problems, we recommend you to know the physical properties for the materials used in luminaires, it requires to select carefully.
- 6) Risk of Sulfurization (or Tarnishing)
  - The lead frame from Samsung Electronics is a plated package and it may change to black (or dark colored) when it is exposed to Ag (a), Sulfur (S), Cchlorine (Cl) or other halogen compound. It requires attention.
  - Sulfide (Sulfurization) of the lead frame may cause a change of degradation intensity, chromaticity coordinates and it may cause open circuit in extreme cases. It requires attention.
  - Sulfide (Sulfurization) of the lead frame may cause of storage and using with oxidizing substances together. Therefore, LED is not recommend to use and store with the below list.  
: Rubber, Plain paper, lead solder cream etc.



# LED Module

Rev. No

Page

2.1

12 / 12

## 7) Others

- If over voltage which exceeds the absolute maximum rating is applied to LED Lighting, it will cause damage Circuits(that LED is included) and result in destruction.
- Do not directly look into lighted LED with naked eyes for long time.

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