

## Data Sheet



### Linear Module, M-series

<b>Model Name</b>	LT-M562A, M562B, M562C			
<b>Type</b>	560x18x5.8[mm]			
<b>Parts No.</b>	Model	M562A	M562B	M562C
	3000 K	SI-B8V111560WW	SI-B8V151560WW	SI-B8V171560WW
	3500 K	SI-B8U111560WW	SI-B8U151560WW	SI-B8U171560WW
	4000 K	SI-B8T111560WW	SI-B8T151560WW	SI-B8T171560WW
	5000 K	SI-B8R111560WW	SI-B8R151560WW	SI-B8R171560WW

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## 1. Products and Application

This specification defines general specification and performance for LED Linear module. Samsung Linear Modules 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. Linear module has been designed to expand length simply and adopt easy connection way.

This M-series have 3 product types which are M562A, M562B and M562C. Depending on luminaire target performance, module can be selected.

## 2. Specification

No.	Item	Specifications	Unit	Remark
2-1	Dimension	560.0(L) × 18.0(W) × 5.8(h) mm	mm	Tolerance:±0.4mm
2-2	Weight	27.5(g) for M562A/M562B 28.5(g) for M562C	g	Tolerance:±1.4g
2-3	Rated lifetime	> 50,000	hour	L70B50 @T <sub>c</sub> = 70 °C (M562A) T <sub>c</sub> = 80 °C (M562B, M562C)
2-4	Ingress Protection	N/A	-	-
2-5	Operating Temperature	T <sub>a</sub> = - 20 ~ 70	°C	-
2-6	Storage Temperature	T <sub>a</sub> = - 35 ~ 85	°C	-

## 2-1. M562A

No.	Item	Specifications					Unit	Remark
		Sym.	Model	Min.	Nom.	Max.		
1-1	Luminous flux	$\Phi_v$	3000K	1236	1460	1528	lm	@450mA, Tp = 50°C
			3500K	1256	1480	1554		
			4000K	1298	<b>1530</b>	1605		
			5000K	1340	1580	1657		
1-2	Efficiency	LPW	3000K	-	132	-	lm/W	@450mA, Tp = 50°C
			3500K	-	133	-		
			4000K	-	<b>138</b>	-		
			5000K	-	142	-		
1-3	CCT	-	3000K	2908	2998	3091	K	@450mA, Tp = 50°C
			3500K	3314	3428	3552		
			4000K	3824	3971	4132		
			5000K	4834	5082	5372		
1-4	Operating Current	Iop	-	-	450	450	mA	-
1-5	Operating Voltage	Vdc	-	-	24.7	-	V	@450mA, Tp = 50°C
1-6	Power Consumption	-	-	-	11.1	-	W	@450mA, Tp = 50°C

## 2-2. M562B

No.	Item	Specifications					Unit	Remark
		Sym.	Model	Min.	Nom.	Max.		
2-1	Luminous flux	$\Phi_v$	3000K	1648	1950	2038	lm	@600mA, Tp = 50°C
			3500K	1675	1970	2071		
			4000K	1732	<b>2040</b>	2141		
			5000K	1787	2100	2210		
2-2	Efficiency	LPW	3000K	-	132	-	lm/W	@600mA, Tp = 50°C
			3500K	-	133	-		
			4000K	-	<b>138</b>	-		
			5000K	-	142	-		
2-3	CCT	-	3000K	2910	3001	3094	K	@600mA, Tp = 50°C
			3500K	3320	3434	3561		
			4000K	3829	3978	4143		
			5000K	4867	5117	5411		
2-4	Operating Current	Iop	-	-	600	600	mA	-
2-5	Operating Voltage	Vdc	-	-	24.7	-	V	@600mA, Tp = 50°C
2-6	Power Consumption	-	-	-	14.8	-	W	@600mA, Tp = 50°C

## 2-3. M562C

No.	Item	Specifications					Unit	Remark
		Sym.	Model	Min.	Nom.	Max.		
3-1	Luminous flux	$\Phi_v$	3000K	1986	2350	2455	lm	@700mA, Tp = 50°C
			3500K	2019	2390	2497		
			4000K	2087	<b>2460</b>	2581		
			5000K	2154	2530	2663		
3-2	Efficiency	LPW	3000K	-	140	-	lm/W	@700mA, Tp = 50°C
			3500K	-	142	-		
			4000K	-	<b>146</b>	-		
			5000K	-	151	-		
3-3	CCT	-	3000K	2901	2991	3085	K	@700mA, Tp = 50°C
			3500K	3322	3437	3562		
			4000K	3810	3961	4120		
			5000K	4850	5099	5389		
3-4	Operating Current	Iop	-	-	700	900	mA	-
3-5	Operating Voltage	Vdc	-	-	24.0	-	V	@700mA, Tp = 50°C
3-6	Power Consumption	-	-	-	16.8	-	W	@700mA, Tp = 50°C

## 2-4. Common

No.	Item	Specifications					Unit	Remark
		Sym.	Model	Min.	Nom.	Max.		
4-1	SDCM	-	-	-	3	-	step	MacAdam @ initial time
4-2	Color Rendering Index	CRI	-	80	-	-	Ra	-

※ 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

(1) M562A



(2) M562B



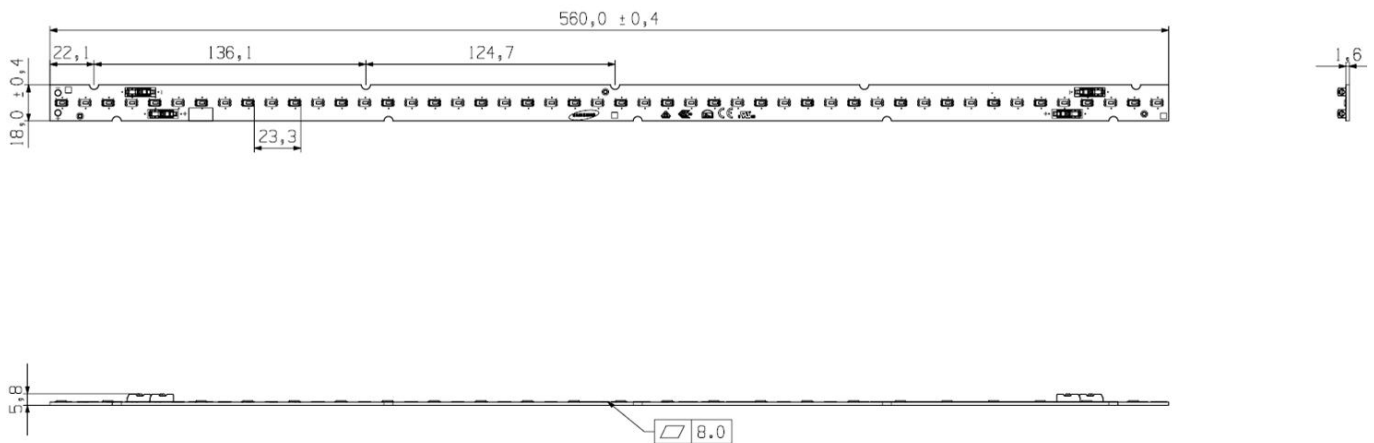
(3) M562C



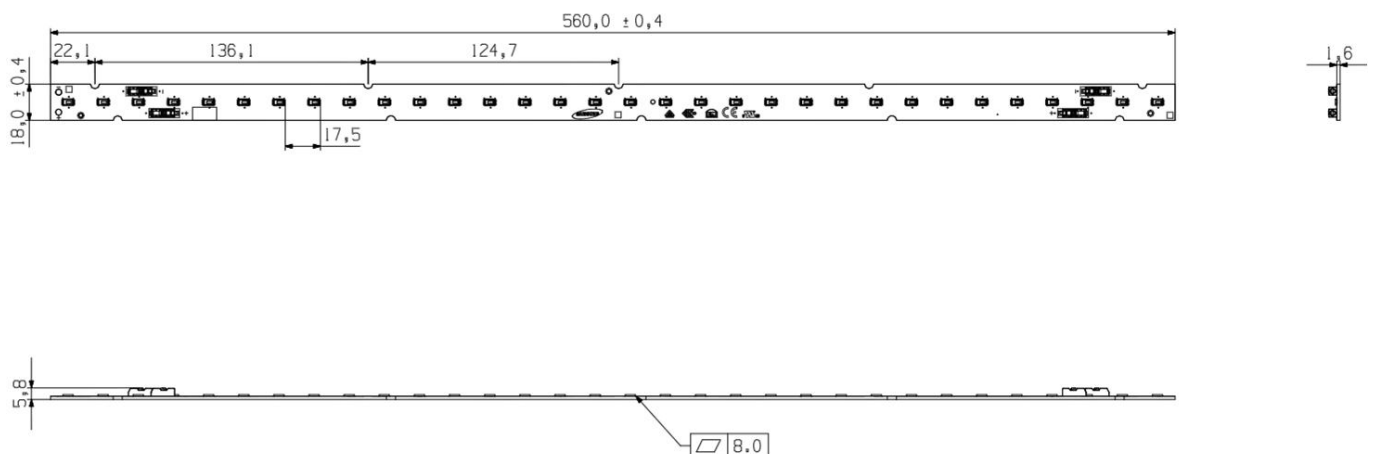
<Top View>

### 3-2. Dimension

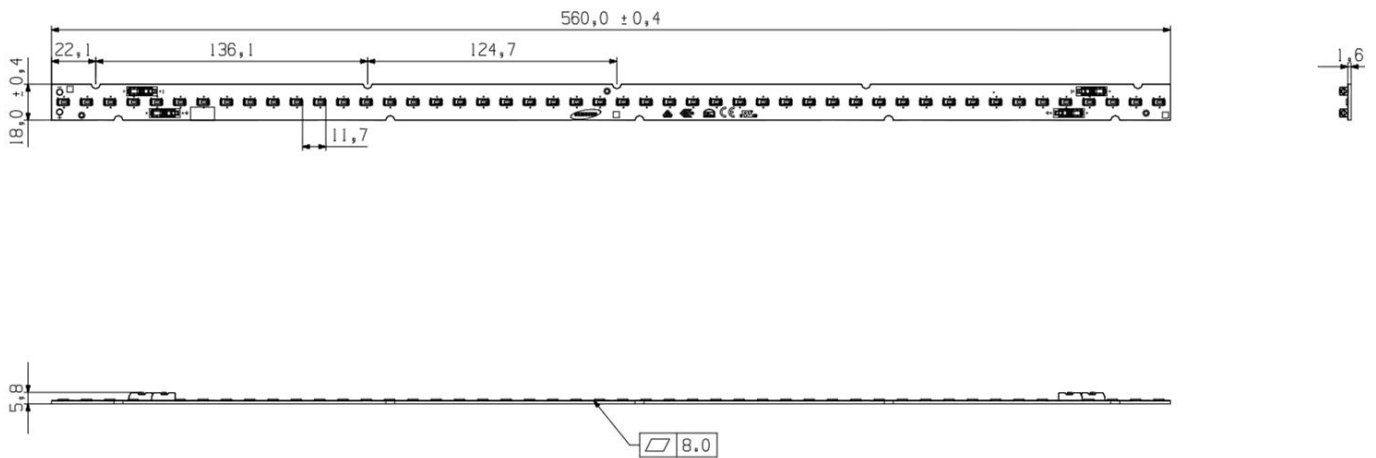
(1) M562A



(2) M562B



### (3) M562C

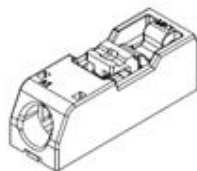


<Top View>

Item		Specifications
L	Length of PCB	560.0 ± 0.4 mm
W	Width of PCB	18.0 ± 0.4 mm
H1	Thickness of PCB	1.6 ± 0.1 mm
H2	Height of PCBA	5.8 ± 0.2 mm

### 3-3. Assembly

This module adapts terminal strip connection method to connect between LED modules like as below.



<Terminal strip Type>

AWG 24-18

- (1) Insert solid conductors via push-in termination.
- (2) Insert or remove fine-standard conductors by lightly pressing on push-button.

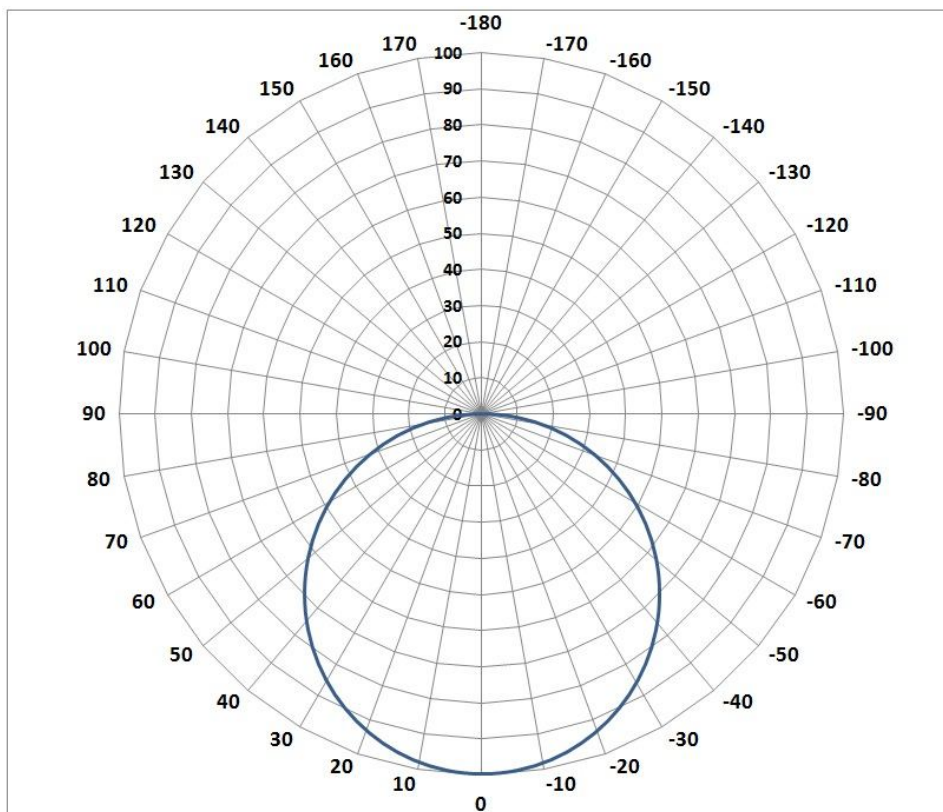
## 3-4. Structure



No.		Item	Specifications
Module Assembly	3-1	LED	LM561B : Middle Power LED
	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  $115 \pm 5$  [°]





## 3-6. Thermal Management

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



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

- Tc\_life (M562A) = 70 degree for > 50,000 hours (L70B50)

- Tc\_life (M562B, M562C) = 80 degree for > 50,000 hours (L70B50)

(3) Tc\_max : Max temperature to operate

- Tc\_max = 90 degree

## 4. Approbation

Item	Compliant to	Result / Remark
General	Eye safety : IEC62471	LM561B LED
Hazardous Substance & Materials	RoHS / Reach	Declared
Certification	UL/cUL	E344519
	CE	IEC 62031:2008 IEC 62471:2008
	ENEC	IEC 62031:2008 IEC 62471:2008

## 5. Packing

### 5-1 Module Q'ty

-	1 Tray	1 Box	1 Pallet
Num. of modules	40	280	4480 (16 boxes)

**5-2 Pallet** : 800(L) x 1200(W) x 145(h) mm

## 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.



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## 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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