

## LED Module

# M-series 4ft\_A

# M-series 4ft\_B

# M-series 4ft\_C



### Features & Benefits

- 4ft length to reduce labor in connection of LED boards
- Possible for tab mounting to minimize screwing
- Perfect combination through product family with M-series (M562x, M282x)

### Applications

Indoor Lighting:

- Office / Retail / Living space
- Area Panels, Troffer and Linear Pendants
- Channel and Cove lighting

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## 1. Product Code Information

### a) M-series 4ft A

Nominal CCT (K)	Product Code
3000	SI-B8V221B20WW
3500	SI-B8U221B20WW
4000	SI-B8T221B20WW
5000	SI-B8R221B20WW

### b) M-series 4ft B

Nominal CCT (K)	Product Code
3000	SI-B8V301B20WW
3500	SI-B8U301B20WW
4000	SI-B8T301B20WW
5000	SI-B8R301B20WW

### c) M-series 4ft C

Nominal CCT (K)	Product Code
3000	SI-B8V341B20WW
3500	SI-B8U341B20WW
4000	SI-B8T341B20WW
5000	SI-B8R341B20WW

## 2. Characteristics

Item	Rating	Unit	Remark
Rated Lifetime	>50,000	hour	L70B50
Ingress Protection (IP)	no rating	-	
Ambient / Operating Temperature ( $t_{amb}$ )	-20 ~ +50	°C	
Storage Temperature	-30 ~ +80	°C	

### (a) M-series 4ft A

Item	Nom. CCT (K)	Rating			Unit	Remark
		Min	Typ.	Max		
Luminous Flux ( $\Phi_v$ )	3000	2845	3160	3510	lm	
	3500	2890	3210	3565		
	4000	2970	3300	3665		
	5000	2970	3300	3665		
Luminous Efficacy	3000	127	142	157	lm/W	$I_f = 900 \text{ mA}$ $t_p = 50 \text{ }^\circ\text{C}$
	3500	129	144	160		
	4000	133	148	164		
	5000	133	148	164		
CCT	3000	2922	3038	3166	K	
	3500	3307	3455	3621		
	4000	3781	3975	4188		
	5000	4789	5030	5302		
Color Rendering Index (Ra)		80	83	-	-	
Operating Current ( $I_f$ )		-	900	1080	mA	-
Operating Voltage ( $V_f$ )		23.56	24.8	26.04	Vdc	$I_f = 900 \text{ mA}$
Power Consumption		21.2	22.3	23.4	W	$t_p = 50 \text{ }^\circ\text{C}$

#### Notes:

- 1)  $t_p$ : temperature at which performance is specified; measured at "tc point".
- 2) Samsung maintains a measurement tolerance of: Luminous flux:  $\pm 7\%$ , CRI:  $\pm 3.0$ , Voltage:  $\pm 0.3\text{V}$ , Power Consumption:  $\pm 0.3\text{W}$

**(b) M-series 4ft B**

Item	Nom. CCT (K)	Rating			Unit	Remark
		Min	Typ.	Max		
Luminous Flux ( $\Phi_v$ )	3000	3790	4210	4680	lm	
	3500	3850	4280	4755		
	4000	3960	4400	4890		
	5000	3960	4400	4890		
Luminous Efficacy	3000	127	141	157	lm/W	If = 1200 mA tp = 50 °C
	3500	129	144	160		
	4000	133	148	164		
	5000	133	148	164		
CCT	3000	2922	3038	3166	K	
	3500	3307	3455	3621		
	4000	3781	3975	4188		
	5000	4789	5030	5302		
Color Rendering Index (Ra)		80	83	-	-	
Operating Current (If)		-	1200	1440	mA	-
Operating Voltage (Vf)		23.56	24.8	26.04	Vdc	If = 1200 mA tp = 50 °C
Power Consumption		28.3	29.8	31.2	W	tp = 50 °C

**Notes:**

- 3)  $t_p$ : temperature at which performance is specified; measured at “tc point”.
- 4) Samsung maintains a measurement tolerance of: Luminous flux:  $\pm 7\%$ , CRI:  $\pm 3.0$ , Voltage:  $\pm 0.3V$ , Power Consumption:  $\pm 0.3W$

## (c) M-series 4ft C

Item	Nom. CCT (K)	Rating			Unit	Remark
		Min	Typ.	Max		
Luminous Flux ( $\Phi_v$ )	3000	4565	5070	5635	lm	
	3500	4635	5150	5720		
	4000	4780	5310	5900		
	5000	4780	5310	5900		
Luminous Efficacy	3000	136	151	168	lm/W	If = 1400 mA tp = 50 °C
	3500	138	153	170		
	4000	142	158	176		
	5000	142	158	176		
CCT	3000	2917	3033	3159	K	
	3500	3298	3445	3610		
	4000	3768	3960	4174		
	5000	4773	5012	5283		
Color Rendering Index (Ra)		80	83	-	-	
Operating Current (If)		-	1400	2160	mA	-
Operating Voltage (Vf)		22.8	24.0	25.2	Vdc	If = 1400 mA tp = 50 °C
Power Consumption		31.9	33.6	35.3	W	tp = 50 °C

**Notes:**

- 5)  $t_p$ : temperature at which performance is specified; measured at “tc point”.
- 6) Samsung maintains a measurement tolerance of: Luminous flux:  $\pm 7\%$ , CRI:  $\pm 3.0$ , Voltage:  $\pm 0.3V$ , Power Consumption:  $\pm 0.3W$

Item	Nominal*	Life**	Max***	Unit
Temperature	50 ( $t_p$ )	80( $t_{p,50}$ )	90( $t_c$ )	°C

**Notes:**

- \* Temperature used to specify performance of the module ( $t_p$ ).
- \*\* Rated maximum performance temperature at which lifetime is specified ( $t_{p,50}$ ).
- \*\*\* Rated maximum temperature, highest permissible temperature to avoid safety risk ( $t_c$ ).

All temperatures are measured at the designated “tc point” as indicated on the module.

### 3. Structure and Assembly

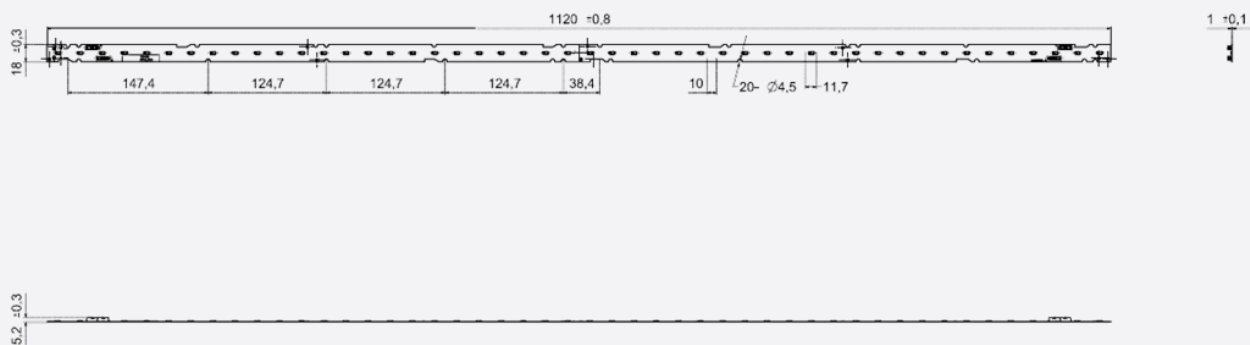
#### a) Appearance



#### b) Dimension

##### M-series 4ft A

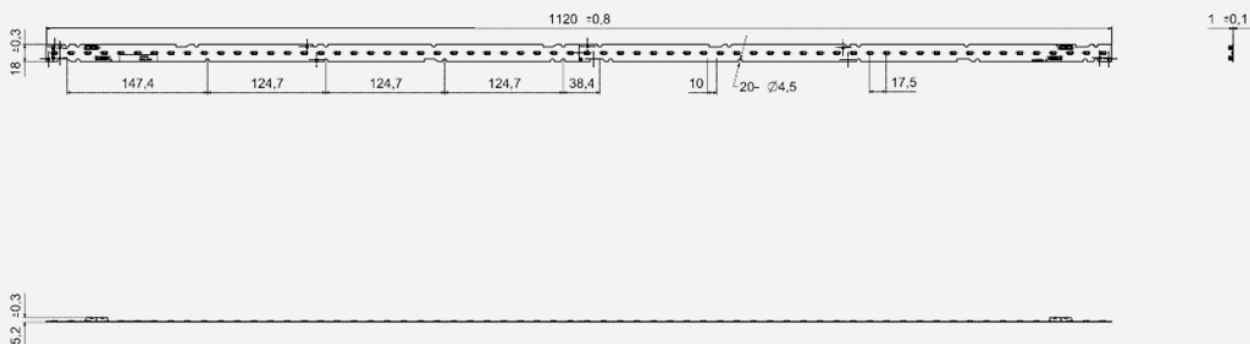
Dimension	Specification	Tolerance	Unit
Module Length	1120.0	$\pm 0.8$	mm
Module Width	18.0	$\pm 0.3$	mm
Module Height	5.2	$\pm 0.3$	mm
PCB Thickness	1.0	$\pm 0.16$	mm
Module Weight	42.0	$\pm 2.2$	g





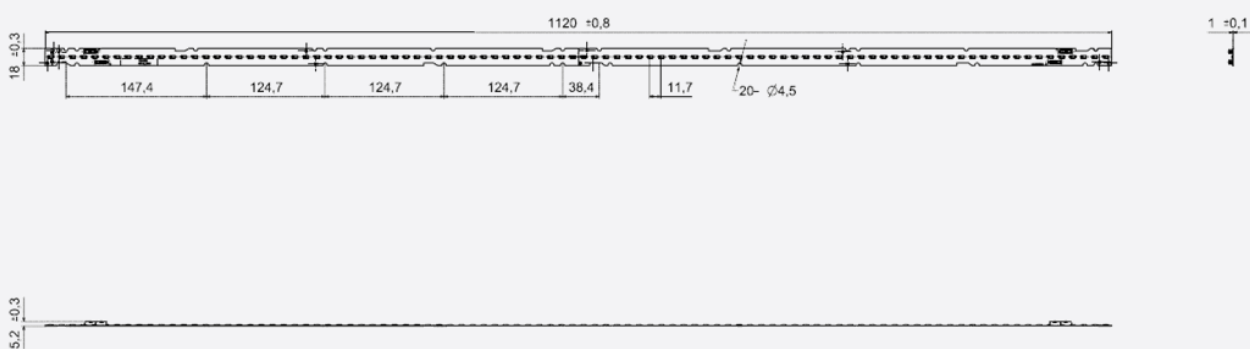
### M-series 4ft B

Dimension	Specification	Tolerance	Unit
Module Length	1120.0	$\pm 0.8$	mm
Module Width	18.0	$\pm 0.3$	mm
Module Height	5.2	$\pm 0.3$	mm
PCB Thickness	1.0	$\pm 0.16$	mm
Module Weight	43.0	$\pm 2.2$	g



### M-series 4ft C

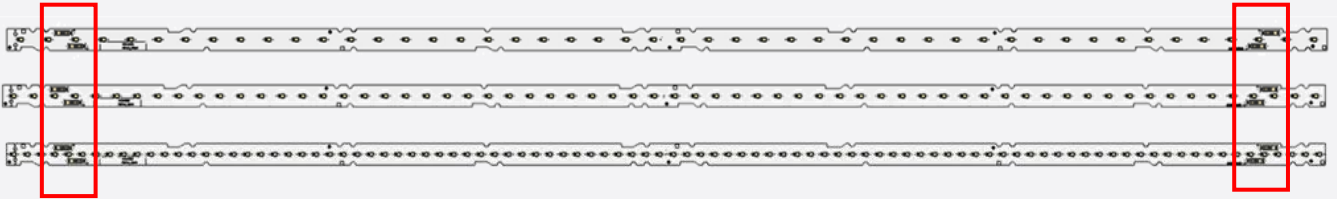
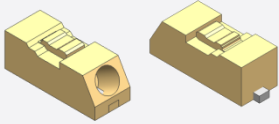
Dimension	Specification	Tolerance	Unit
Module Length	1120.0	$\pm 0.8$	mm
Module Width	18.0	$\pm 0.3$	mm
Module Height	5.2	$\pm 0.3$	mm
PCB Thickness	1.0	$\pm 0.16$	mm
Module Weight	45.0	$\pm 2.3$	g



### c) Assembly

Connectors on the board are provided for easy wiring with the LED driver and between modules

[Front connector]

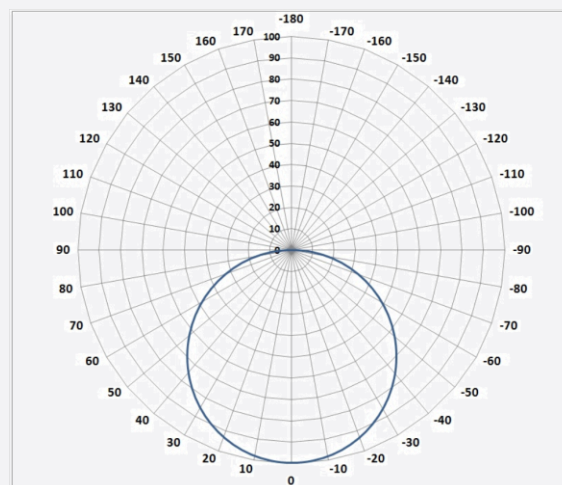


### d) Structure

Item	Specification
LED	LM561B+ Middle Power LED
PCB	Material: copper, solder mask, epoxy
Connector	Reworkable poke-in connector type
Wire	0.511~1.02 mm <sup>2</sup> (24~18 AWG)

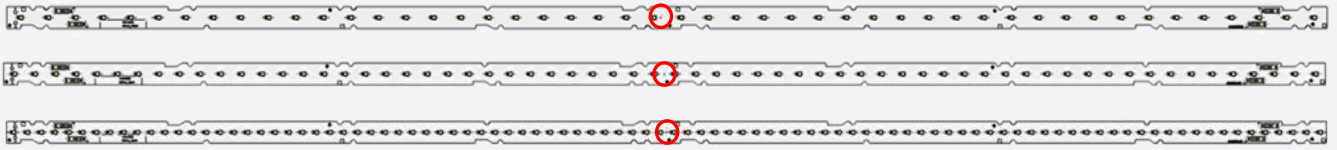
### e) Light Distribution

Polar Intensity Diagram: Beam Angle  $115 \pm 5^\circ$



**f) Thermal Management**

Performance temperatures are measured on “tc point” as indicated on the module.

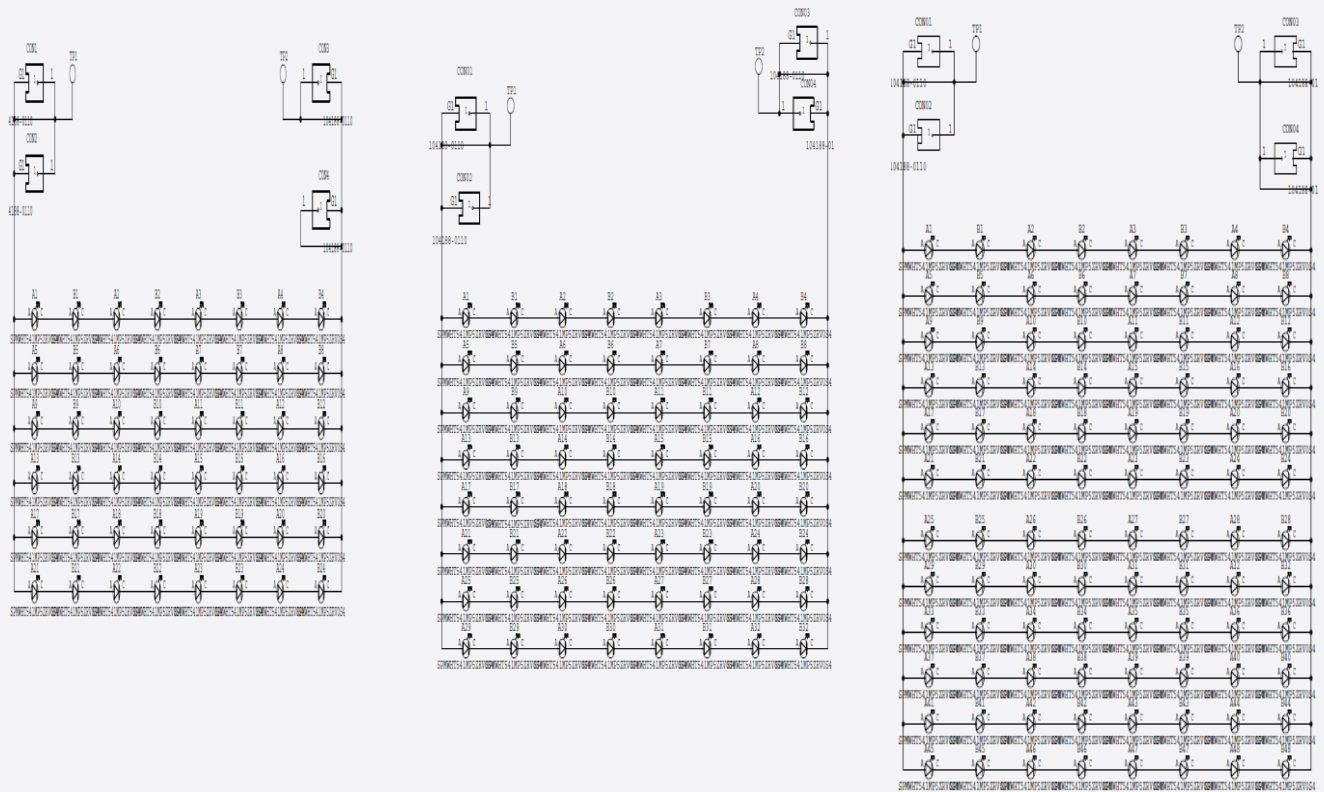


**g) Schematic Circuit**

M-series 4ft A 8S/6P

M-series 4ft B 8S/8P

M-series 4ft C 8S/12P



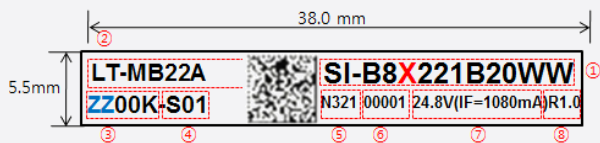
#### 4. Certification and Declaration

Item	Compliant to	Remark
Test & Certification	CE	T.B.D
	ENEC	-
	VDE	-
	UL	E344519
	cUL	E344519
	Photo biological Safety(LM561B+ LED)	IEC / EN 62471
Declaration	RoHS	Hazardous Substance & Material
	REACH	Hazardous Substance & Material

## 5. Label Structure

### a) Module Label

[Printing Label]



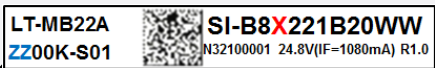
[Information of Barcode]

- ① Model code: SI-B8X221B20WW  
SI-B8X301B20WW  
SI-B8X341B20WW  
X: V (3000K), U (3500K), T (4000K), R (5000K), P (6500K)
- ② Product name: LT-MB22A  
LT-MB22B  
LT-MB22C
- ③ Color temperature: ZZ00K  
ZZ: 30, 35, 40, 50
- ④ LED maker: -S (Samsung)  
Group No.: 01 (Binning group)
- ⑤ SMT date: N321 (2013-March-21)  
A (2000), B (2001) ······ K (2010), L (2011), M (2012), N (2013) ······ (year)  
1 (January), ······ 9(September), A (October), B (November), C (December) (month)  
01, 02, 03, ······ 31th (date)
- ⑥ Serial No.: 00001~99999; Setting "00001" every working day
- ⑦ Voltage(IF)
- ⑧ Product Revision: R1.0

[QR CODE Information]

- ① Example: SI-B8X221B20WW\_ N321100001ZZ00K-S01
- ② 34 digits: Model code (14) + Space (1) + SMT date (4) + SMT line No. (1) + Serial No. (5)  
+ Color temperature (5) + Dash(1)+LED maker (1) + GROUP No. (2)

Model CODE	SI-B8X221B20WW
QR CODE Information	SI-B8X221B20WW_ N321100001ZZ00K-S01



**b) Tray & MBB Label**

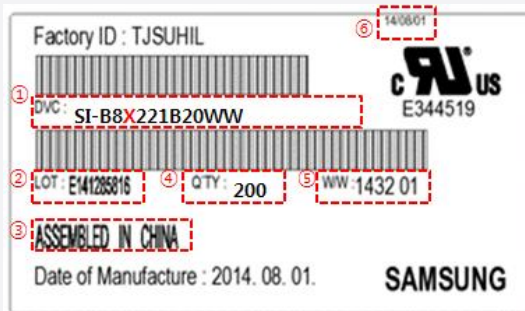
- 100mm x 50mm



- ① Model code: SI-B8X221B20WW
- ② LOT: 20160101-D0001  
 Packing Date(8 digit) → 20160101  
 Production Site(1digit)  
 Serial no(4 digit) → 0001~9999, A111~A999
- ③ QTY: Quantity of Packaged Bar (5 Digit)
- ④ W/W: Production Year(2 digit) + Production Week(2 digit)
- ⑤ Issue date of Label: 16:year/01:month/01:day

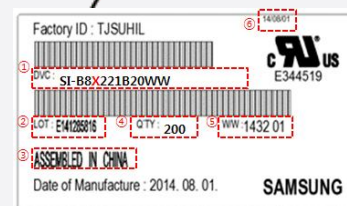
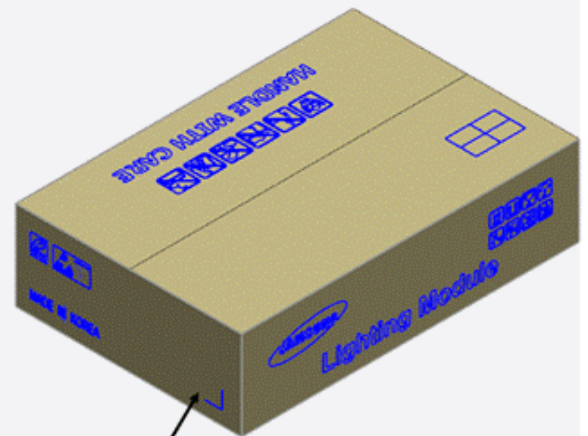
**c) Box Label**

- 100mm x 50mm



The lot number is composed of the following characters:

- ① Product code
- ② Lot ID
- ③ Place of origin
- ④ Quantity
- ⑤ Describe production week
- ⑥ Date of Issue



**6. Packing Structure**

ARTICLE	TRAY	BOX	PALLET	REMARKS
Quantity	20 ea	200 ea	2400 ea	

## 7. Precautions in Handling & Use

A. The LED Lighting Modules 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).

Also when the LEDs are illuminating, operating current should be decided after considering the ambient maximum temperature.

### B. Handling

To prevent the LED Lighting Modules from making any defectives, please handle the LED Lighting Modules with care as follows.

- (1) Don't drop the unit and don't give the unit any shocks.
- (2) Don't bend the PCB and don't touch the LED Resin.
- (3) Don't storage the Module in a dusty place or room.
- (4) Don't take the product apart.
- (5) Don't touch the LED and also PCB and other circuit parts of Module with your naked fingers or sharpness things.
- (6) Take care so that do not pull wire with hand in case of carries or moves LED Lighting Modules.

### C. Cleaning

The LED Lighting Modules should not be used in any type of fluid such as water, oil, organic solvent, etc.

It is recommended that IPA (Isopropyl Alcohol) be used as a solvent for cleaning the LED Lighting Modules.

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 Lighting Modules by the ultrasonic.

Before cleaning, a pre-test should be done to confirm whether any damage to the LED Lighting Modules will occur.

### D. Static Electricity

Static electricity or surge voltage damages the LED Lighting Modules. Please keep the working process anti-static electricity condition to prevent the Lighting from destroying, as following.

- (1) Anyone who handles the unit should be well grounded.(earth ring or anti-static glove)
- (2) Anyone who handles the unit should wear anti-electrostatic working clothes.
- (3) All kinds of device and instruments, such as working table, measuring instruments and assembly jigs in your production lines should be well grounded.

### E. Storage

The LED Lighting Modules must be stored to insert a package of a moisture absorbent material(silica gel) in a box.

### F. Others

If over voltage which exceeds the absolute maximum rating is applied to LED Lighting Modules.

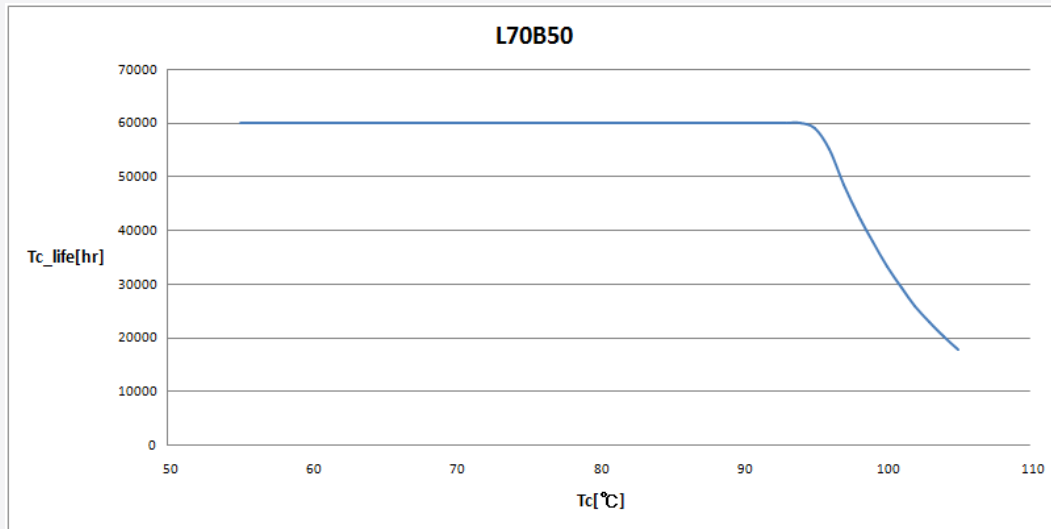
It will cause damage Circuits(that LED is included) and result in destruction.

Do not directly look into lighted LED with naked eyes.

Please use this product within 5 months, which is kept in its original packaging unopened when stocked

## APPENDIX 1. Tc vs Lifetime

### M-series 4ft A,B,C



@150mA/LED



# Legal and additional information.

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