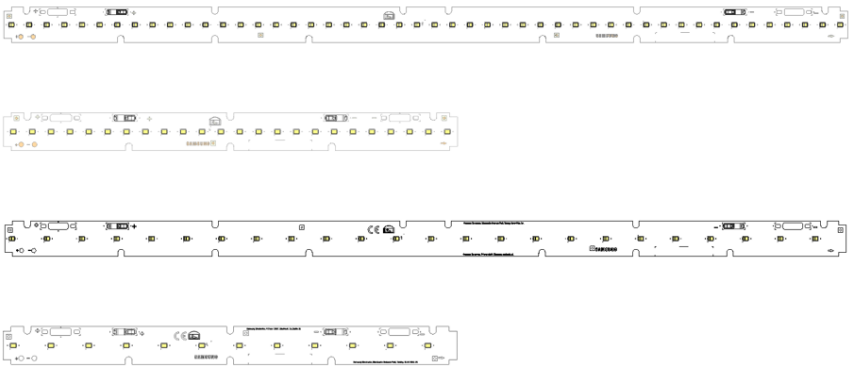
LED Module

S-series 2835 Ver.



SAMSUNG

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1.	Applicable Solid Wires	----------	20

1. Product Code Information

Model Name	Connector Type	CRI	Nominal CCT (K)	Product Code
LT-S562V	Front	80	3000	SI-B8V12A56SEU
			4000	SI-B8T12A56SEU
			6500	SI-B8P12A56SEU
		90	3000	SI-B9V12A56SEU
			4000	SI-B9T12A56SEU
			6500	SI-B9P12A56SEU
LT-S282V	Front	80	3000	SI-B8V06A28SEU
			4000	SI-B8T06A28SEU
			6500	SI-B8P06A28SEU
		90	3000	SI-B9V06A28SEU
			4000	SI-B9T06A28SEU
			6500	SI-B9P06A28SEU
LT-S562W	Front	80	3000	SI-B8V06A56SEU
			4000	SI-B8T06A56SEU
			6500	SI-B8P06A56SEU
		90	3000	SI-B9V06A56SEU
			4000	SI-B9T06A56SEU
			6500	SI-B9P06A56SEU
LT-S282W	Front	80	3000	SI-B8V03A28SEU
			4000	SI-B8T03A28SEU
			6500	SI-B8P03A28SEU
		90	3000	SI-B9V03A28SEU
			4000	SI-B9T03A28SEU
			6500	SI-B9P03A28SEU

2. Characteristics (I_F = 280mA, t_p = 50℃)

a) Basic Information

Item	Rating	Unit	Remark
Rated Lifetime	>50,000	hour	
Ingress Protection (IP)	no rating	-	
Ambient / Operating Temperature (t_{amb})	-20 ~ +50	ºC	
Storage Temperature	-30 ~ +80	ºC	
Working Voltage for Insulation	350	V	

b) Electro-Optical Characteristics

- LT-S562V CRI80

Item	Nom. CCT (K)	Rating			Unit	Remark
		Min	Typ.	Max		
Luminous Flux (Φ_v)	3000	1955	2170	-	lm	I_f = 280mA t_p = 50ºC
	4000	2055	2285	-		
	6500	2055	2285	-		
Luminous Efficacy	3000	154	171	-	lm/W	
	4000	162	180	-		
	6500	162	180	-		
Color Rendering Index (Ra)	-	80	-	-	-	-
Operating Current (I_f)	-	-	280	480	mA	-
Operating Voltage (V_f)	-	43.0	45.4	48.3	Vdc	I_f = 280mA t_p = 50ºC
Power Consumption	-	12.0	12.7	13.5	W	

Notes:

1) t_p : temperature at which performance is specified; measured at “Tc point”.
2) Samsung maintains a measurement tolerance of : Luminous flux: ±7 %, CRI: ±3.0, Voltage: ±5%

- LT-S562V CRI90

Item	Nom. CCT (K)	Rating Min	Rating Typ.	Rating Max	Unit	Remark
Luminous Flux (Φ_v)	3000	1660	1845	-	lm	I_f = 280mA t_p = 50ºC
	4000	1745	1940	-		
	6500	1745	1940	-		
Luminous Efficacy	3000	131	145	-	lm/W	
	4000	137	153	-		
	6500	137	153	-		
Color Rendering Index (Ra)	-	90	-	-	-	-
Operating Current (I_f)	-	-	280	480	mA	-
Operating Voltage (V_f)	-	43.0	45.4	48.3	Vdc	I_f = 280mA t_p = 50ºC
Power Consumption	-	12.0	12.7	13.5	W	

Notes:

1) t_p : temperature at which performance is specified; measured at “Tc point”.
2) Samsung maintains a measurement tolerance of : Luminous flux: ±7 %, CRI: ±3.0, Voltage: ±5%

- LT-S282V CRI80

Item	Nom. CCT (K)	Rating Min	Rating Typ.	Rating Max	Unit	Remark
Luminous Flux (Φ_v)	3000	975	1085	-	lm	I_f = 280mA t_p = 50ºC
	4000	1030	1145	-		
	6500	1030	1145	-		
Luminous Efficacy	3000	153	171	-	lm/W	
	4000	162	180	-		
	6500	162	180	-		
Color Rendering Index (Ra)	-	80	-	-	-	-
Operating Current (I_f)	-	-	280	480	mA	-
Operating Voltage (V_f)	-	21.0	22.7	24.1	Vdc	I_f = 280mA t_p = 50ºC
Power Consumption	-	5.9	6.4	6.7	W	

Notes:

1) t_p : temperature at which performance is specified; measured at “Tc point”.
2) Samsung maintains a measurement tolerance of : Luminous flux: ±7 %, CRI: ±3.0, Voltage: ±5%

- LT-S282V CRI90

Item	Nom. CCT (K)	Rating			Unit	Remark
		Min	Typ.	Max		
Luminous Flux (Φ_v)	3000	830	920	-	lm	I_f = 280mA t_p = 50ºC
	4000	880	975	-		
	6500	880	975	-		
Luminous Efficacy	3000	131	145	-	lm/W	
	4000	138	153	-		
	6500	138	153	-		
Color Rendering Index (Ra)	-	90	-	-	-	-
Operating Current (I_f)	-	-	280	480	mA	-
Operating Voltage (V_f)	-	21.0	22.7	24.1	Vdc	I_f = 280mA t_p = 50ºC
Power Consumption	-	5.9	6.4	6.7	W	

Notes:

1) t_p : temperature at which performance is specified; measured at “Tc point”.
2) Samsung maintains a measurement tolerance of : Luminous flux: ±7 %, CRI: ±3.0, Voltage: ±5%

- LT-S562W CRI80

Item	Nom. CCT (K)	Rating			Unit	Remark
		Min	Typ.	Max		
Luminous Flux (Φ_v)	3000	975	1085	-	lm	I_f = 280mA t_p = 50ºC
	4000	1030	1145	-		
	6500	1030	1145	-		
Luminous Efficacy	3000	153	171	-	lm/W	
	4000	162	180	-		
	6500	162	180	-		
Color Rendering Index (Ra)	-	80	-	-	-	-
Operating Current (I_f)	-	-	280	480	mA	-
Operating Voltage (V_f)	-	21.0	22.7	24.1	Vdc	I_f = 280mA t_p = 50ºC
Power Consumption	-	5.9	6.4	6.7	W	

Notes:

1) t_p : temperature at which performance is specified; measured at “Tc point”.
2) Samsung maintains a measurement tolerance of : Luminous flux: ±7 %, CRI: ±3.0, Voltage: ±5%

- LT-S562W CRI90

Item	Nom. CCT (K)	Rating			Unit	Remark
		Min	Typ.	Max		
Luminous Flux (Φ_v)	3000	830	920	-	lm	I_f = 280mA t_p = 50ºC
	4000	880	975	-		
	6500	880	975	-		
Luminous Efficacy	3000	131	145	-	lm/W	
	4000	138	153	-		
	6500	138	153	-		
Color Rendering Index (Ra)	-	90	-	-	-	-
Operating Current (I_f)	-	-	280	480	mA	-
Operating Voltage (V_f)	-	21.0	22.7	24.1	Vdc	I_f = 280mA t_p = 50ºC
Power Consumption	-	5.9	6.4	6.7	W	

Notes:

1) t_p : temperature at which performance is specified; measured at “Tc point”.
2) Samsung maintains a measurement tolerance of : Luminous flux: ±7 %, CRI: ±3.0, Voltage: ±5%

- LT-S282W CRI80

Item	Nom. CCT (K)	Rating			Unit	Remark
		Min	Typ.	Max		
Luminous Flux (Φ_v)	3000	485	540	-	lm	I_f = 280mA t_p = 50ºC
	4000	515	570	-		
	6500	515	570	-		
Luminous Efficacy	3000	152	169	-	lm/W	
	4000	161	179	-		
	6500	161	179	-		
Color Rendering Index (Ra)	-	80	-	-	-	-
Operating Current (I_f)	-	-	280	480	mA	-
Operating Voltage (V_f)	-	10.7	11.4	12.1	Vdc	I_f = 280mA t_p = 50ºC
Power Consumption	-	3.0	3.2	3.4	W	

Notes:

1) t_p : temperature at which performance is specified; measured at “Tc point”.
2) Samsung maintains a measurement tolerance of : Luminous flux: ±7 %, CRI: ±3.0, Voltage: ±5%

- LT-S282W CRI90

Item	Nom. CCT (K)	Rating Min	Rating Typ.	Rating Max	Unit	Remark
Luminous Flux (Φ_v)	3000	415	460	-	lm	I_f = 280mA t_p = 50ºC
	4000	435	485	-		
	6500	435	485	-		
Luminous Efficacy	3000	130	144	-	lm/W	
	4000	136	152	-		
	6500	136	152	-		
Color Rendering Index (Ra)	-	90	-	-	-	-
Operating Current (I_f)	-	-	280	480	mA	-
Operating Voltage (V_f)	-	10.7	11.4	12.1	Vdc	I_f = 280mA t_p = 50ºC
Power Consumption	-	3.0	3.2	3.4	W	

Notes:

1) t_p : temperature at which performance is specified; measured at “Tc point”.
2) Samsung maintains a measurement tolerance of : Luminous flux: ±7 %, CRI: ±3.0, Voltage: ±5%

c) Color Coordinate

- CRI80

Model	Nom. CCT (K)	CIE 1931 Chromaticity Coordinates					Remark
SI-B8V12A56SEU SI-B8V06A28SEU SI-B8V06A56SEU SI-B8V03A28SEU	3000	CIE x	0.4258	0.4380	0.4455	0.4328	I_F = 280 mA t_p = 25 ºC
		CIE y	0.3904	0.3946	0.4100	0.4055	
		Center	0.4355		0.4001		
SI-B8T12A56SEU SI-B8T06A28SEU SI-B8T06A56SEU SI-B8T03A28SEU	4000	CIE x	0.3756	0.3885	0.3929	0.3796	
		CIE y	0.3669	0.3747	0.3901	0.3819	
		Center	0.3842		0.3784		
SI-B8P12A56SEU SI-B8P06A28SEU SI-B8P06A56SEU SI-B8P03A28SEU	6500	CIE x	0.3108	0.3193	0.3182	0.3095	
		CIE y	0.3223	0.3308	0.3393	0.3305	
		Center	0.3144		0.3307		

Note:

Samsung maintains a measurement tolerance of CIE_x / CIE_y ± 0.005

- CRI90

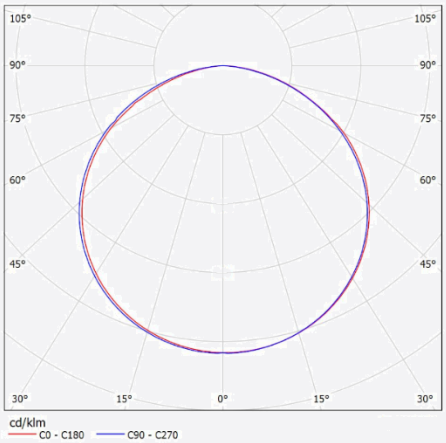
Model	Nom. CCT (K)	CIE 1931 Chromaticity Coordinates					Remark
SI-B9V12A56SEU SI-B9V06A28SEU SI-B9V06A56SEU SI-B9V03A28SEU	3000	CIE x	0.4236	0.4358	0.4433	0.4305	I_F = 280 mA t_p = 25 ºC
		CIE y	0.3889	0.3931	0.4084	0.4040	
		Center	0.4333		0.3986		
SI-B9T12A56SEU SI-B9T06A28SEU SI-B9T06A56SEU SI-B9T03A28SEU	4000	CIE x	0.3746	0.3875	0.3919	0.3786	
		CIE y	0.3644	0.3722	0.3875	0.3793	
		Center	0.3831		0.3758		
SI-B9P12A56SEU SI-B9P06A28SEU SI-B9P06A56SEU SI-B9P03A28SEU	6500	CIE x	0.3096	0.3182	0.3171	0.3083	
		CIE y	0.3181	0.3266	0.3351	0.3263	
		Center	0.3133		0.3266		

Note:

Samsung maintains a measurement tolerance of CIE_x / CIE_y ± 0.005

d) Light Distribution

Item	Unit	Nominal	Tolerance	Remark
Beam Angle (FWHM)	˚(degree)	115	± 5	



e) Temperature Characteristics

Item	Nominal(t_p)*	Life**(t_L)	Max***(t_c)	Unit
Temperature	50	80	90	ºC

Notes:

* Temperature used to specify performance of the module (t_p).

** Rated maximum performance temperature at which lifetime is specified in L70B50 (t_L).

*** 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. (See page 10)

Please use heat-sink(or heat dissipation solution) with proper thermal capacity(operating wattage).

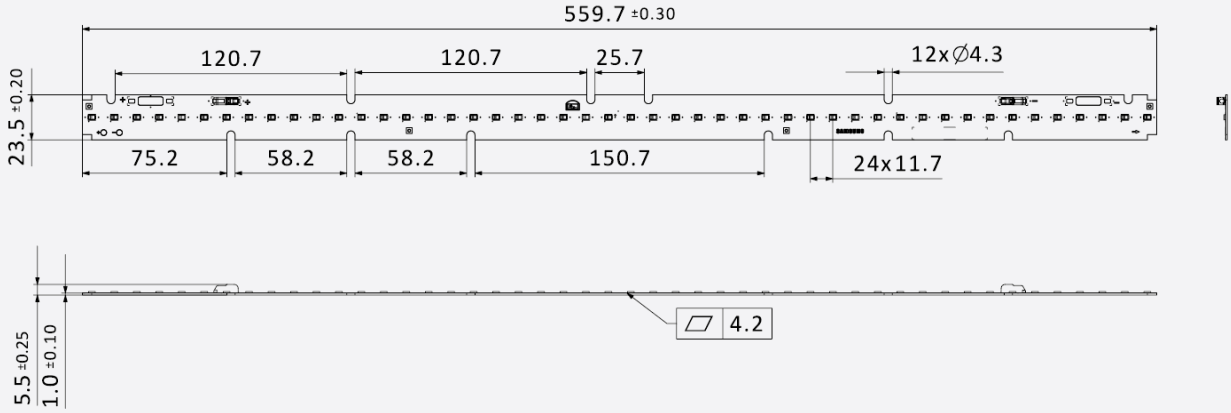
f) Thermal Measurement

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

3. Structure and Assembly

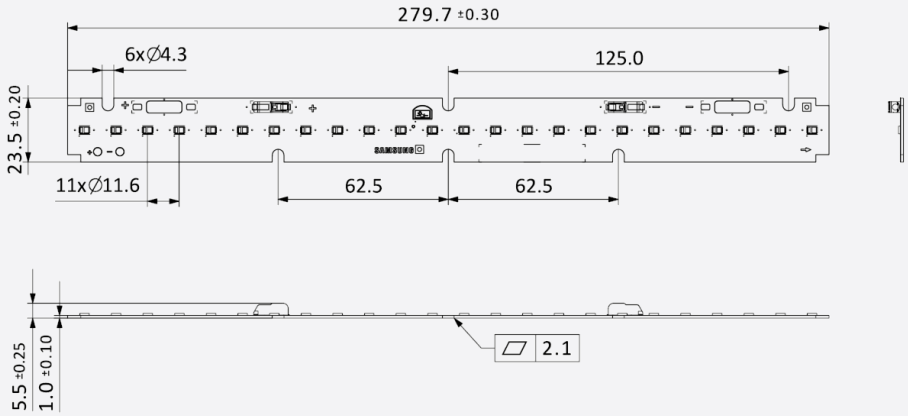
a) Appearance & Dimension

- LT-S562V Front Connector



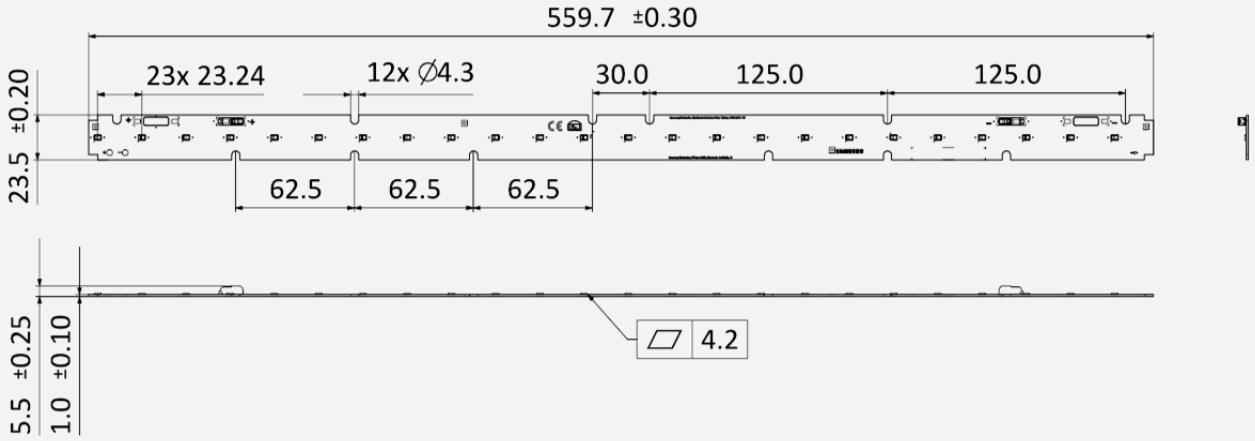
Dimension	Specification	Tolerance	Unit
Module Length	559.7	±0.3	mm
Module Width	23.5	±0.2	mm
Module Height	5.5	±0.25	mm
PCB Thickness	1.0	±0.1	mm
Module Weight	29.4	±1.47	g

- LT-S282V Front Connector



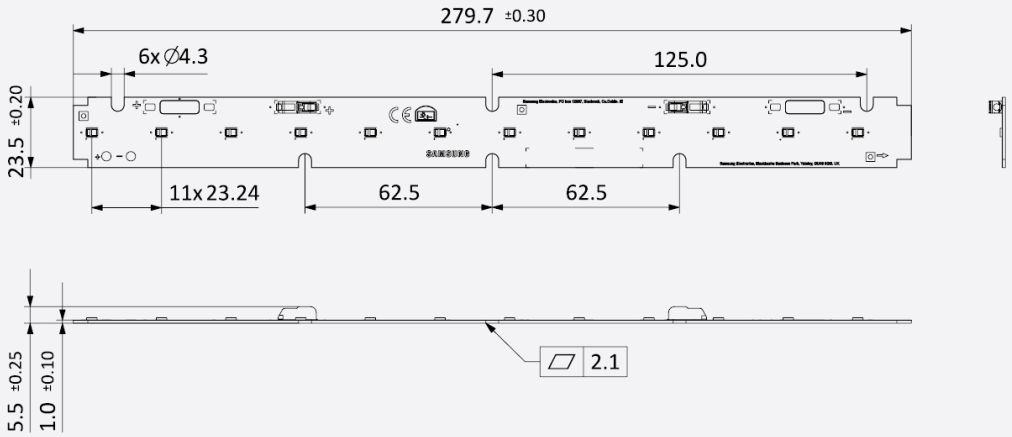
Dimension	Specification	Tolerance	Unit
Module Length	279.7	±0.3	mm
Module Width	23.5	±0.2	mm
Module Height	5.5	±0.25	mm
PCB Thickness	1.0	±0.1	mm
Module Weight	14.8	±0.74	g

- LT-S562W Front Connector



Dimension	Specification	Tolerance	Unit
Module Length	559.7	±0.3	mm
Module Width	23.5	±0.2	mm
Module Height	5.5	±0.25	mm
PCB Thickness	1.0	±0.1	mm
Module Weight	28.9	±1.45	g

- LT-S282W Front Connector



Dimension	Specification	Tolerance	Unit
Module Length	279.7	±0.3	mm
Module Width	23.5	±0.2	mm
Module Height	5.5	±0.25	mm
PCB Thickness	1.0	±0.1	mm
Module Weight	14.6	±0.73	g

b) Structure

Item	Specification
LED	LM281B+ Middle Power LED
PCB	Material : copper, solder mask, epoxy
Connector	Wago 2060-451
Wire	24~18 AWG ; terminal strip length of 7.0~9.0 mm (Appendix 1)

c) Schematic Circuit

- LT-S562V : 16S x 3P
- LT-S282V : 8S x 3P
- LT-S562W : 8S x 3P
- LT-S282W : 4S x 3P

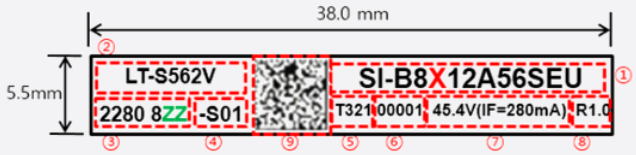
4. Certification and Declaration

Item	Compliant to	Remark
Declaration	RoHS	Hazardous Substance & Material

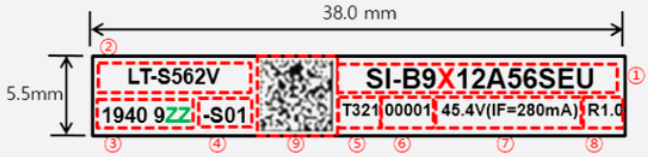
5. Label Structure

a) Module Label

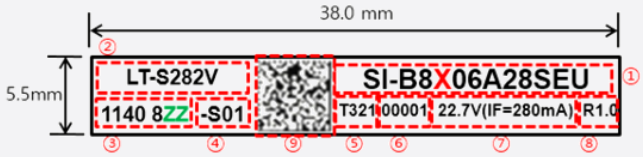
- LT-S562V CRI80



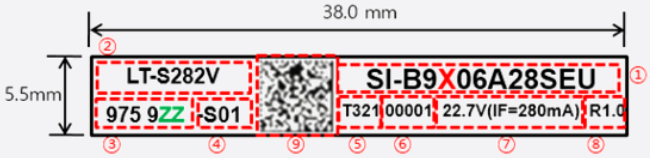
- LT-S562V CRI90



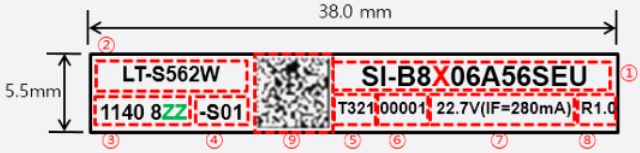
- LT-S282V CRI80



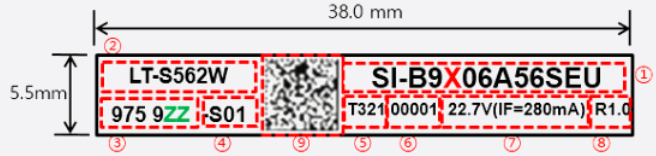
- LT-S282V CRI90



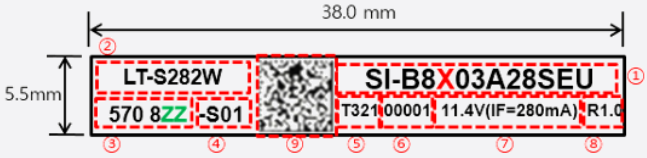
- LT-S562W CRI80



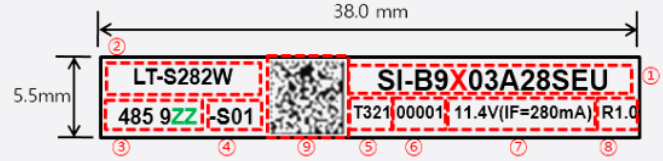
- LT-S562W CRI90



- LT-S282W CRI80



- LT-S282W CRI90

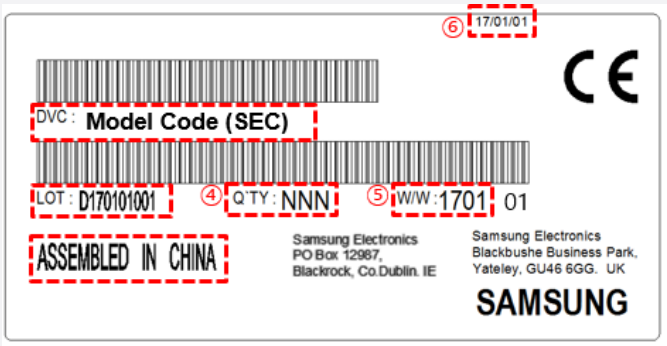


Number	Item	Remark
①	Model code	Refer to page 3
②	Product name	
③	Luminous Flux & CRI & Color temperature	ZZ = 30,40,65
④	LED maker & Bin rank	-S (Samsung) 00~ZZ
⑤	SMT date	T321 (2019-March-21th)
⑥	Serial No.	00001~99999; Setting "00001" every working day
⑦	Voltage (IF).	
⑧	Product Revision	
⑨	QR Code	LT-S562V CRI80 : SI-B8X12A56SEU T321100001ZZ00K-S01

b) Tray & MBB bag Label

Number	Item	Remark
①	Model Code	Refer to page 3
②	LOT ID	
③	Quantity	Refer to page 17
④	Date of production	
⑤	Date of Issue	
⑥	Place of origin	

c) Box Label



Number	Item	Remark
①	Model Code	Refer to page 3
②	LOT ID	
③	Place of origin	
④	Quantity	Refer to page 17
⑤	Describe production week	
⑥	Date of Issue	

6. Packing Structure

Product	Packing	Quantity (modules)	Dimension (mm)		
			Length	Width	Height
LT-S562V LT-S562W Front Connector	Tray	30 ea	580	380	34
	Outer Box	240 ea	585	385	225
	Pallet	3840 ea	1200	800	130
LT-S282V LT-S282W Front Connector	Tray	30 ea	380	355	32.3
	Outer Box	240 ea	385	360	225
	Pallet	5760 ea	1200	800	130

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
Please be careful when taking a product out from packaging.

Legal and additional information.

About Samsung Electronics Co., Ltd.

Samsung inspires the world and shapes the future with transformative ideas and technologies. The company is redefining the worlds of TVs, smartphones, wearable devices, tablets, digital appliances, network systems, and semiconductor and LED solutions. For the latest news, please visit the Samsung Newsroom at news.samsung.com

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Appendix

1. Applicable Solid Wires

a) Strip details

Wiring method	Push In
Cross section [solid]	0.2-0.75mm^2
Cross Section [AWG]	24-18
Strip length	8.0 ±1mm
Conductor entry angle to the PCB	0 °

※ outside insulation diameter Φ2.1mm Max.

b) Material details

Temperature stability	-40°C ~ +105°C
Flammability category, based on UL94	V0
Insulating material group	I
Insulating material	PPA-GF

c) Important processing notes

Depending on the SMD soldering process and associated parameters a minor discoloration might occur.
However, this will not influence the functionality.