LED Module

V-Series Gen2 Pro

SAMSUNG

Table of Contents

1. Product Code Information

- LT-V562C

Nominal CCT (K)	Product Code
3000	SI-B8V17256CWW
3500	SI-B8U17256CWW
4000	SI-B8T17256CWW
5000	SI-B8R17256CWW

- LT-VB22C

Nominal CCT (K)	Product Code
3000	SI-B8V342B2CUS
3500	SI-B8U342B2CUS
4000	SI-B8T342B2CUS
5000	SI-B8R342B2CUS

- LT-V562F

Nominal CCT (K)	Product Code
3000	SI-B8V26256CUS
3500	SI-B8U26256CUS
4000	SI-B8T26256CUS
5000	SI-B8R26256CUS

- LT-V564F

Nominal CCT (K)	Product Code
3000	SI-B8V52256CUS
3500	SI-B8U52256CUS
4000	SI-B8T52256CUS
5000	SI-B8R52256CUS

- LT-VB22F

Nominal CCT (K)	Product Code
3000	SI-B8V522B2CUS
3500	SI-B8U522B2CUS
4000	SI-B8T522B2CUS
5000	SI-B8R522B2CUS

2. Characteristics

(LT-V562C, LT-VB22C I_F=700mA, t_p=50ºC

LT-V562F, LT-V564F, LT-VB22F I_F=1120mA, t_p=65ºC)

a) Basic Information

Item	Rating	Unit	Remark
Rated Lifetime	>50,000	hour	L70B50 @LT-V562C, LT-VB22C, t_p <80℃,I_F=700mA L70B50 @LT-V562F, LT-V564F, LT-VB22F, t_p <80℃,I_F=1120mA
Ingress Protection (IP)	no rating	-	
Ambient / Operating Temperature (t_{amb})	-30 ~ +50	ºC	
Storage Temperature	-30 ~ +80	ºC	

Notes:

※ I_F: Forward current or Operating current

※ t_p: temperature at which performance is specified measured at “Tc point”.

※ t_a: ambient temperature

b) Electro-Optical Characteristics

- LT-V562C

Item	Nom. CCT (K)	Rating			Unit	Remark
		Min	Typ.	Max		
Luminous Flux (Φ_v)	3000	2480	2680	-	lm	I_f = 700mA t_p = 50ºC
	3500	2515	2720	-		
	4000	2600	2810	-		
	5000	2630	2845	-		
Luminous Efficacy	3000	153	165	-	lm/W	
	3500	155	167	-		
	4000	160	173	-		
	5000	162	175	-		
Color Rendering Index (Ra)	-	80	83	-	-	-
Operating Current (I_f)	-	-	700	900	mA	-
Operating Voltage (V_f)	-	21.5	23.2	25.1	Vdc	I_f = 700mA t_p = 50ºC
Power Consumption	-	15.0	16.2	17.6	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-V562C Option

Item	Nom. CCT (K)	Rating				Remark
		Min	Typ.	Max	Unit	
Luminous Flux (Φ_v)	4000	2035	2200	-	lm	I_f = 540mA t_p = 50ºC
Luminous Efficacy	4000	165	179	-	lm/W	
Color Rendering Index (Ra)	-	80	83	-	-	-
Operating Current (I_f)	-	-	540	-	mA	-
Operating Voltage (V_f)	-	21.1	22.8	24.7	Vdc	I_f = 540mA t_p = 50ºC
Power Consumption	-	11.4	12.3	13.3	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-VB22C

Item	Nom. CCT (K)	Rating				Remark
		Min	Typ.	Max	Unit	
Luminous Flux (Φ_v)	3000	4960	5360	-	lm	I_f = 700mA t_p = 50ºC
	3500	5030	5440	-		
	4000	5200	5620	-		
	5000	5265	5690	-		
Luminous Efficacy	3000	153	165	-	lm/W	
	3500	155	167	-		
	4000	160	173	-		
	5000	162	175	-		
Color Rendering Index (Ra)	-	80	83	-	-	-
Operating Current (I_f)	-	-	700	900	mA	-
Operating Voltage (V_f)	-	43.0	46.4	50.2	Vdc	I_f = 700mA t_p = 50ºC
Power Consumption	-	30.1	32.5	35.1	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-V562F

Item	Nom. CCT (K)	Rating			Unit	Remark
		Min	Typ.	Max		
Luminous Flux (Φ_v)	3000	3840	4150	-	lm	I_f = 1120mA t_p = 65ºC
	3500	3890	4205	-		
	4000	4020	4345	-		
	5000	4070	4400	-		
Luminous Efficacy	3000	147	159	-	lm/W	
	3500	149	161	-		
	4000	154	167	-		
	5000	156	169	-		
Color Rendering Index (Ra)	-	80	83	-	-	-
Operating Current (I_f)	-	-	1120	1350	mA	-
Operating Voltage (V_f)	-	21.5	23.3	25.1	Vdc	I_f = 1120mA t_p = 65ºC
Power Consumption	-	24.1	26.1	28.1	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-V564F

Item	Nom. CCT (K)	Rating			Unit	Remark
		Min	Typ.	Max		
Luminous Flux (Φ_v)	3000	7680	8300	-	lm	I_f = 1120mA t_p = 65ºC
	3500	7780	8410	-		
	4000	8040	8690	-		
	5000	8140	8800	-		
Luminous Efficacy	3000	147	159	-	lm/W	
	3500	149	161	-		
	4000	154	167	-		
	5000	156	169	-		
Color Rendering Index (Ra)	-	80	83	-	-	-
Operating Current (I_f)	-	-	1120	1350	mA	-
Operating Voltage (V_f)	-	43.0	46.5	50.3	Vdc	I_f = 1120mA t_p = 65ºC
Power Consumption	-	48.2	52.1	56.3	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-VB22F

Item	Nom. CCT (K)	Rating			Unit	Remark
		Min	Typ.	Max		
Luminous Flux (Φ_v)	3000	7680	8300	-	lm	I_f = 1120mA t_p = 65ºC
	3500	7780	8410	-		
	4000	8040	8690	-		
	5000	8140	8800	-		
Luminous Efficacy	3000	147	159	-	lm/W	
	3500	149	161	-		
	4000	154	167	-		
	5000	156	169	-		
Color Rendering Index (Ra)	-	80	83	-	-	-
Operating Current (I_f)	-	-	1120	1350	mA	-
Operating Voltage (V_f)	-	43.0	46.5	50.3	Vdc	I_f = 1120mA t_p = 65ºC
Power Consumption	-	48.2	52.1	56.3	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

- LT-V562C, LT-VB22C

Model Code	Nom. CCT (K)	CIE 1931 Chromaticity Coordinates					Remark
SI-B8V17256CWW SI-B8V342B2CUS	3000	CIE x	0.4259	0.4381	0.4456	0.4329	I_F = 700mA t_p = 25 ºC
		CIE y	0.3928	0.3970	0.4124	0.4079	
		Center	0.4356		0.4026		
SI-B8U17256CWW SI-B8U342B2CUS	3500	CIE x	0.4009	0.4137	0.4203	0.4070	
		CIE y	0.3810	0.3872	0.4038	0.3972	
		Center	0.4105		0.3923		
SI-B8T17256CWW SI-B8T342B2CUS	4000	CIE x	0.3754	0.3882	0.3927	0.3794	
		CIE y	0.3686	0.3764	0.3918	0.3836	
		Center	0.3839		0.3801		
SI-B8R17256CWW SI-B8R342B2CUS	5000	CIE x	0.3409	0.3419	0.3526	0.3513	
		CIE y	0.3440	0.3567	0.3652	0.3523	
		Center	0.3466		0.3545		

Notes:

※ Samsung maintains a measurement tolerance of CIE_x / CIE_y ± 0.005

- LT-V562F, LT-V564F, LT-VB22F

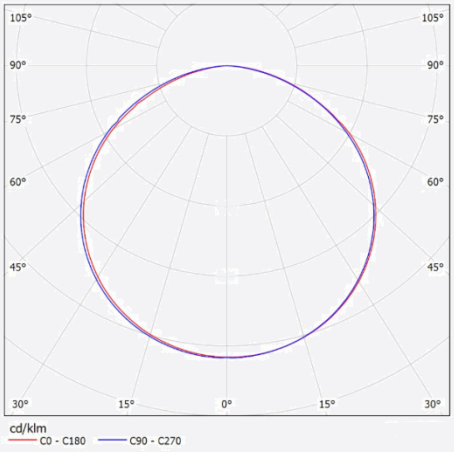
Model Code	Nom. CCT (K)	CIE 1931 Chromaticity Coordinates					Remark
SI-B8V26256CUS SI-B8V52256CUS SI-B8V522B2CUS	3000	CIE x	0.4257	0.4379	0.4454	0.4326	I_F = 1120mA t_p = 25 ºC
		CIE y	0.3931	0.3973	0.4127	0.4082	
		Center	0.4354		0.4028		
SI-B8U26256CUS SI-B8U52256CUS SI-B8U522B2CUS	3500	CIE x	0.4003	0.4131	0.4197	0.4064	
		CIE y	0.3810	0.3872	0.4037	0.3972	
		Center	0.4099		0.3923		
SI-B8T26256CUS SI-B8T52256CUS SI-B8T522B2CUS	4000	CIE x	0.3753	0.3881	0.3926	0.3792	
		CIE y	0.3690	0.3768	0.3922	0.3840	
		Center	0.3838		0.3805		
SI-B8R26256CUS SI-B8R52256CUS SI-B8R522B2CUS	5000	CIE x	0.3405	0.3415	0.3522	0.3509	
		CIE y	0.3439	0.3566	0.3652	0.3522	
		Center	0.3462		0.3545		

Notes:

※ Samsung maintains a measurement tolerance of CIE_x / CIE_y ± 0.005

d) Light Distribution

Item	Unit	Nominal	Tolerance	Remark
Beam Angle (FWHM)	˚(degree)	118	± 5	



e) Temperature Characteristics

- LT-V562C, LT-VB22C

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

- LT-V562F, LT-V564F, LT-VB22F

Item	Nominal(t_p)*	Life**	Max(t_c)***	Unit
Temperature	65	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).

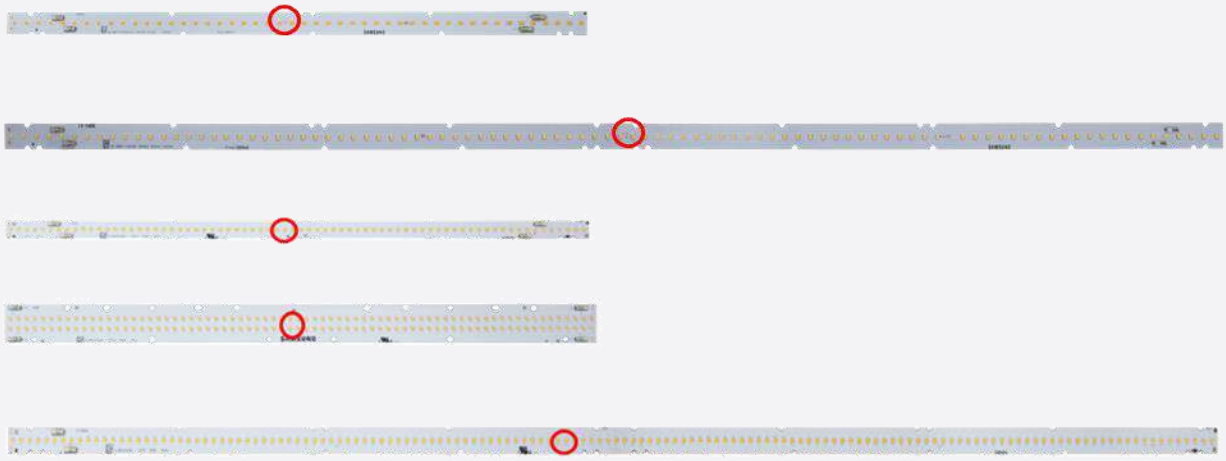
*** Rated maximum temperature, highest permissible temperature to avoid safety risk (t_c).

All temperatures are measured at the designated “Tc point” as indicated on the module. (See page 12)

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

f) Thermal Measurement

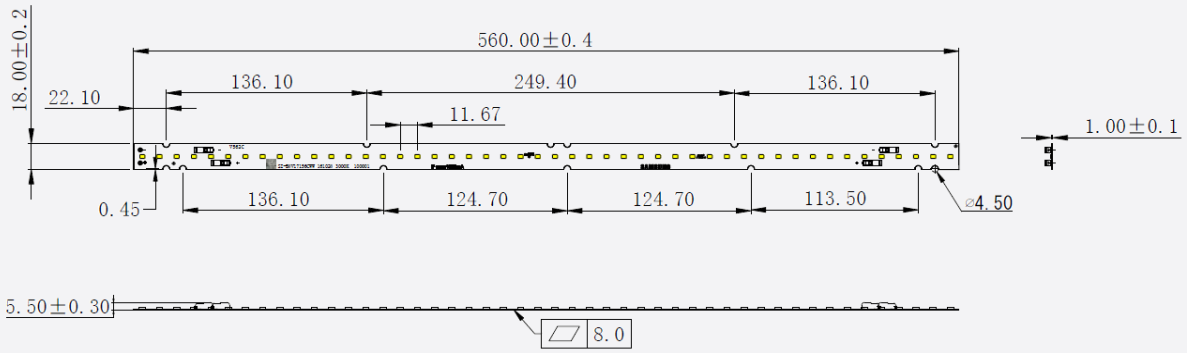
Performance temperatures are measured on “Tc point” as indicated on the module.



3. Structure and Assembly

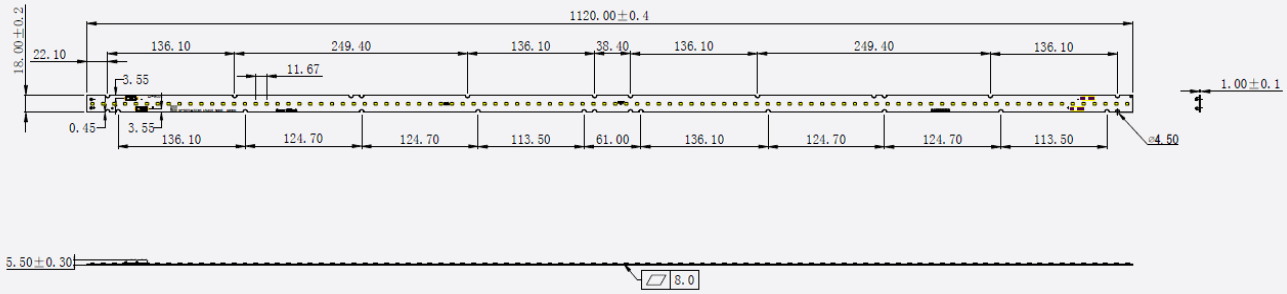
a) Appearance & Dimension

- LT-V562C



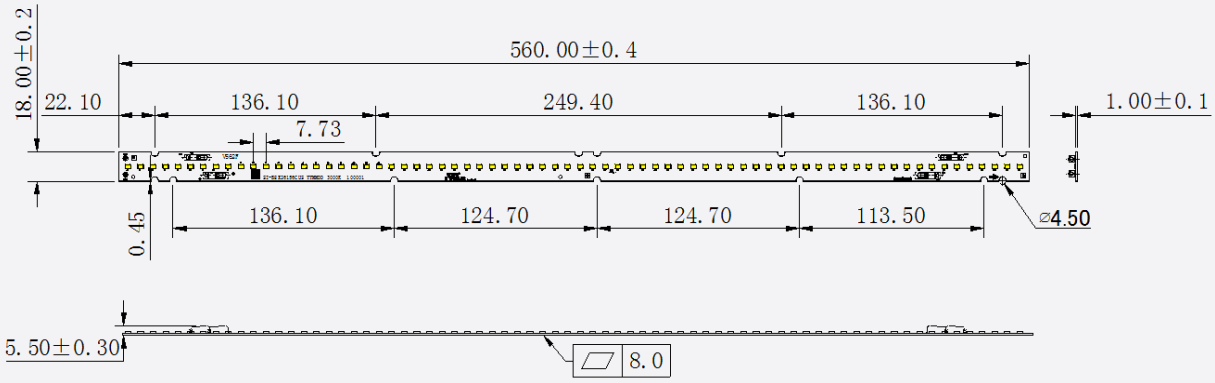
Dimension	Specification	Tolerance	Unit
Module Length	560.0	±0.4	mm
Module Width	18.0	±0.2	mm
Module Height	5.5	±0.3	mm
PCB Thickness	1.0	±0.1	mm
Module Weight	24.94	±1.25	g

- LT-VB22C



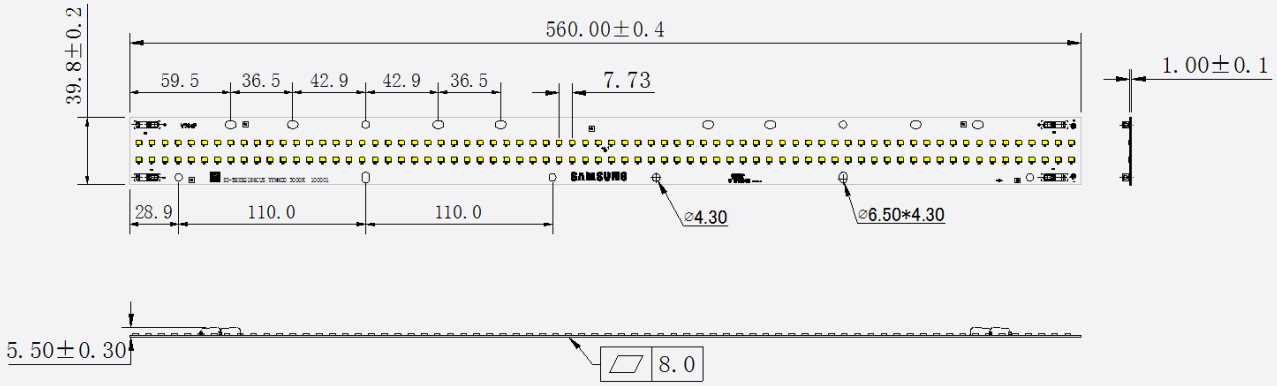
Dimension	Specification	Tolerance	Unit
Module Length	1120.0	±0.4	mm
Module Width	18.0	±0.2	mm
Module Height	5.5	±0.3	mm
PCB Thickness	1.0	±0.1	mm
Module Weight	49.1	±2.46	g

- LT-V562F



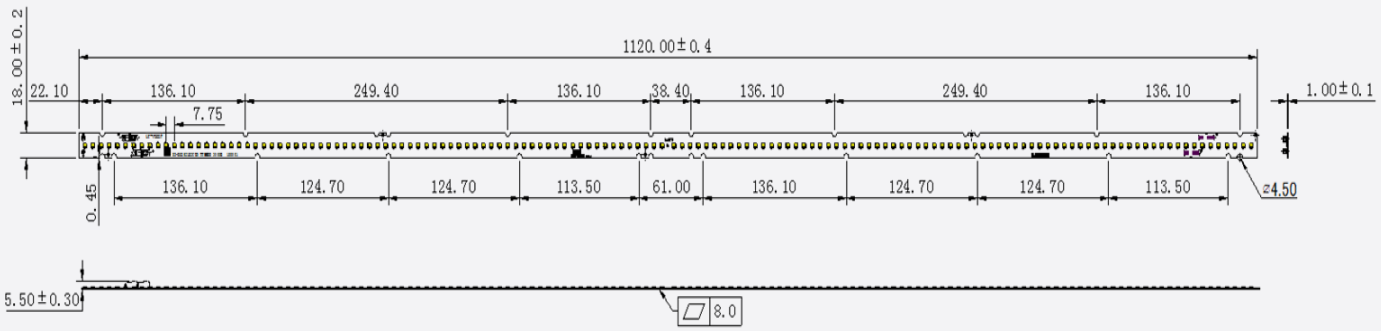
Dimension	Specification	Tolerance	Unit
Module Length	560.0	±0.4	mm
Module Width	18.0	±0.2	mm
Module Height	5.5	±0.3	mm
PCB Thickness	1.0	±0.1	mm
Module Weight	25.51	±1.28	g

- LT-V564F



Dimension	Specification	Tolerance	Unit
Module Length	560.0	±0.4	mm
Module Width	39.8	±0.2	mm
Module Height	5.5	±0.3	mm
PCB Thickness	1.0	±0.1	mm
Module Weight	56.60	±2.83	g

- LT-VB22F



Dimension	Specification	Tolerance	Unit
Module Length	1120.0	±0.4	mm
Module Width	18.0	±0.2	mm
Module Height	5.5	±0.3	mm
PCB Thickness	1.0	±0.1	mm
Module Weight	50.85	±2.54	g

b) Structure

Item	Specification
LED	LM281B+ Pro Middle power LED
PCB	Material : copper, solder mask, epoxy
Connector	Wago 2060-451
Wire	24-18AWG ; terminal strip length of 7.0-9.0mm (Appendix 1)
Test point	Solder is not printed on Test Point (T/P).

c) Schematic Circuit

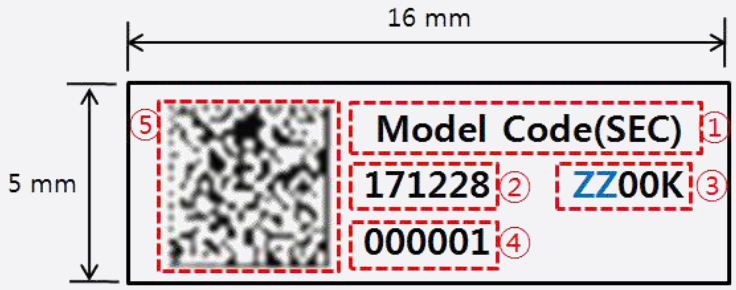
- LT-V562C : 8S x 6P
- LT-VB22C : 16S x 6P
- LT-V562F : 8S x 9P
- LT-V564F : 16S x 9P
- LT-VB22F : 16S x 9P

4. Certification and Declaration

Item	Compliant to	Remark
Test & Certification	UL / cUL	E344519
Declaration	RoHS	Hazardous Substance & Material
	REACH	Hazardous Substance & Material

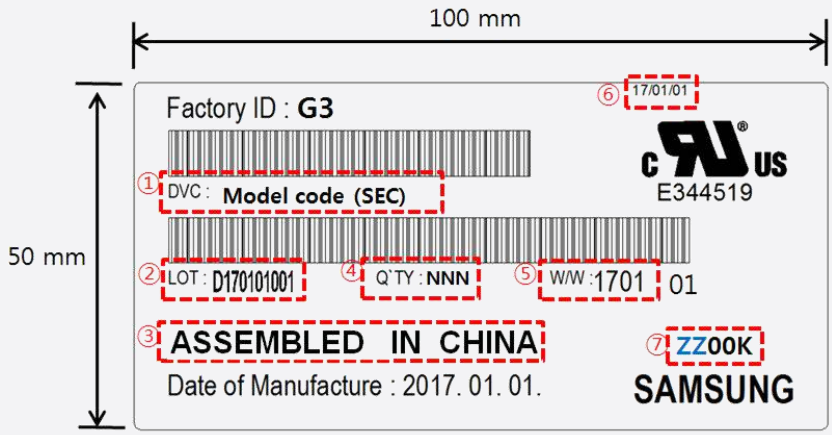
5. Label Structure

a) Module Label



Number	Item	Remark
①	Model code	Refer to page 3,4
②	Date of manufacture	-
③	Color temperature	ZZ = 30, 35, 40, 50
④	Series number	-
⑤	QR code	V562C : SI-B8X17256CWW YYMMDD ZZ00K 100001 VB22C : SI-B8X342B2CUS YYMMDD ZZ00K 100001 V562F : SI-B8X26256CUS YYMMDD ZZ00K 100001 V564F : SI-B8X52256CUS YYMMDD ZZ00K 100001 VB22F : SI-B8X522B2CUS YYMMDD ZZ00K 100001

b) Box Label



Number	Item	Remark
①	Product code	Refer to page 3,4
②	LOT ID	
③	Place of origin	
④	Quantity	Refer to page 19
⑤	Describe production week	
⑥	Date of Issue	
⑦	Color temperature	ZZ = 30, 35, 40, 50

6. Packing Structure

Product	Packing	Quantity (modules)
LT-V562C	Tray	40 ea
	Outer Box	280 ea
	Pallet	5600 ea
LT-VB22C	Tray	20 ea
	Outer Box	200 ea
	Pallet	2400 ea
LT-V562F	Tray	40 ea
	Outer Box	280 ea
	Pallet	5600 ea
LT-V564F	Tray	30 ea
	Outer Box	150 ea
	Pallet	2400 ea
LT-VB22F	Tray	20 ea
	Outer Box	200 ea
	Pallet	2400 ea

7. Precautions in Handling & Use

1) This LED Module should not be used in any type of fluid such as water, oil, organic solvent, etc. When cleaning is required, IPA is recommended as the cleaning agent. Some solvent-based cleaning agent may damage the silicone resins used in the product.
2) The LEDs are sensitive to the static electricity and surge. It is recommended to use a wrist band or anti-electrostatic glove when handling the LED Modules. If voltage exceeding the absolute maximum rating is applied to LEDs, it may cause damage or even destruction to LED devices. Damaged LEDs may show some unusual characteristics such as increase in leak current, lowered turn-on voltage, or abnormal lighting of LEDs at low current.
3) VOCs (Volatile Organic Compounds) can be generated from adhesives, flux, hardener or organic additives used in luminaires (fixtures). Transparent LED silicone encapsulant is permeable to those chemicals and they may lead a discoloration of encapsulant when they exposed to heat or light. This phenomenon can cause a significant loss of light emitted (output) from the luminaires (fixtures). In order to prevent these problems, we recommend users to know the physical properties of the materials used in luminaires, and they must be carefully selected.
4) Risk of sulfurization (or tarnishing)
   The LED uses a silver-plated lead frame and its surface color may change to black (or dark colored) when it is exposed to sulfur (S), chlorine (Cl) or other halogen compound. Sulfurization of lead frame may cause intensity degradation, change of chromaticity coordinates and, in extreme cases, open circuit. It requires caution. Due to possible sulfurization of lead frame, the LED Modules should not be used and stored together with oxidizing substances made of materials such as rubber, plain paper, lead solder cream, etc.
5) The resin area is very sensitive, please do not handle, press, touch or rub it.
6) Do not drop the Module or give shocks.
7) Do not store the Module in a dusty place or humid location.
8) Do not disassemble the Module.
9) Do not directly look into the lighted LED with naked eyes for a long period of time.
10) Please consider the creepage and clearance distance at the end product.

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.

Legal and additional information.

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