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LED Driver

50W Programmable Driver with Dip-switch

SI-CU1625001US (UL Class P)
SI-CU1625002US (UL Type TL)

Constant Current LED Driver
Deep Dimming up to 1%

Features & Benefits

- Output Current Range: 700~1600 mA (Adjustable through Dip-switch)
- Output Voltage Range: 15 ~ 54 Vdc
- Output Power Range: Max. 50 W
- Dimming Control: 0 - 10 Vdc
- Input Voltage: 120 ~ 277 Vac, 50 / 60 Hz
- Safety: UL / cUL 8750
- EMI: FCC Part 15 Class B
- Protections: Short Circuit, Open Load, Thermal Protection
- t_a Range: -20 ~ +50 °C
- Expected lifetime: 50,000 hours at ta < 50 °C
- Environmental Compliance : RoHS
- Long lasting & high reliability
- Metal housing

Applications

- Indoor lighting

SAMSUNG

Table of Contents

SAMSUNG

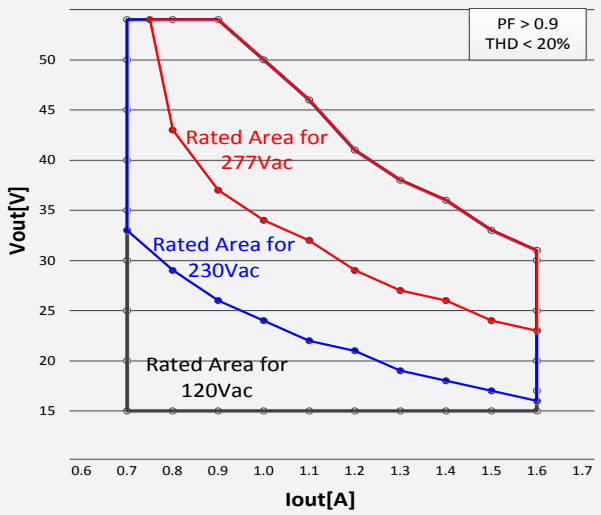
1. Characteristics

Article		Symbol	Specification			Unit	Note
			Min.	Typ.	Max.		
INPUT SPECIFICATIONS							
Nominal Input Voltage		Vin		120 ~ 277		Vac	
Voltage Range			108		305		
Nominal Frequency		Fin		50 / 60		Hz	
Frequency Range			47		63		
Input Current	At 120 Vac	Iin			0.58	A	100% load
	At 277 Vac				0.24		100% load
Total Harmonic Distortion		THD			20	%	Vin = 120~277Vac
Power Factor		PF	0.9			-	Vin = 120~277Vac
Efficiency	At 120 Vac	η	83	85		%	load = 31V / 1.6A
	At 277 Vac		83	87			load = 31V / 1.6A
Standby Power		Pstd			0.5	W	Vin = 120~277Vac, Vdim < 1Vdc.
Inrush Current					20	A_{pk}	twidth= 300μs measured at 50 % Ipk
OUTPUT SPECIFICATIONS							
Output Voltage		Vo	15		54	Vdc	
Max. Voltage		Vp			56.9	Vdc	Open circuit, No-load protection
Output Current		Io	700		1600	mA	
Output Ripple Current		Iripple	-50		+50	%	load = 31V / 1.6A
Nominal Output Power		Po			50	W	
Turn-on Delay Time		td			0.5	s	@ Ambient Temperature Vin = 120~277Vac, load = 31V / 1.6A

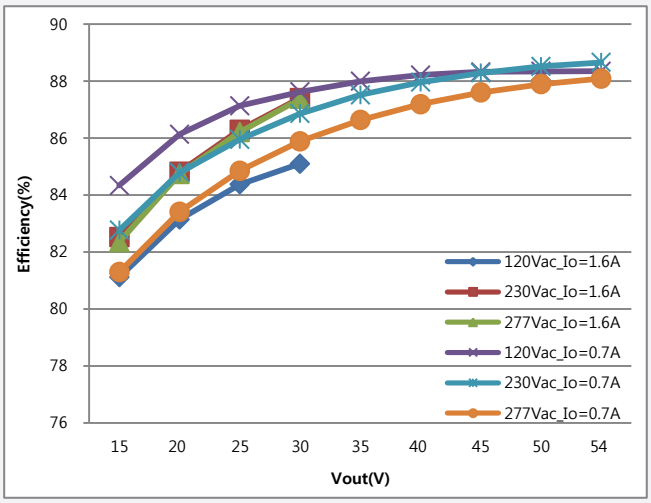
Article		Symbol	Specification			Unit	Note
			Min.	Typ.	Max.		
DIMMING SPECIFICATIONS							
Dimming Range			1		100	%	See 4) Dimming Specification section
Dim. Min.			1			Vdc	
Dim. Max			8		10		
I_{SOURCE}					0.6	mA	
● Recommend for compatible dimmer : IP710-DL, NTSTV-DV, DVSTV							
ENVIRONMENTAL SPECIFICATIONS							
Ambient Temperature		t_a	-20		50	ºC	
Case Temperature		t_c			90		Measured at tc point as indicated on the product label
Storage Temperature		t_s	-25		80		
Relative Humidity			10		90	%	
Lightning Surge	L / N		±1			kV	According to IEC/EN 61000-4-5
	LN / GND		±2				
IP Rating				20		-	Suitable for indoor environment
Expected Lifetime (e-cap)			50,000			h	t_a = 50 ºC, 100% load
MTBF				100,000			t_a = 25°C, 100% load, Vin = 230Vac
Dimensions		L x W x H		300 x 30 x 21		mm	
Net Weight				265		g	

2. Typical Characteristics Graphs

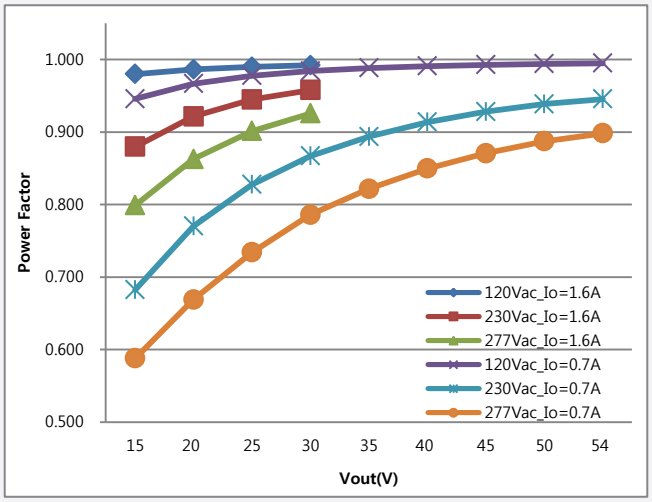
a) Operating Window



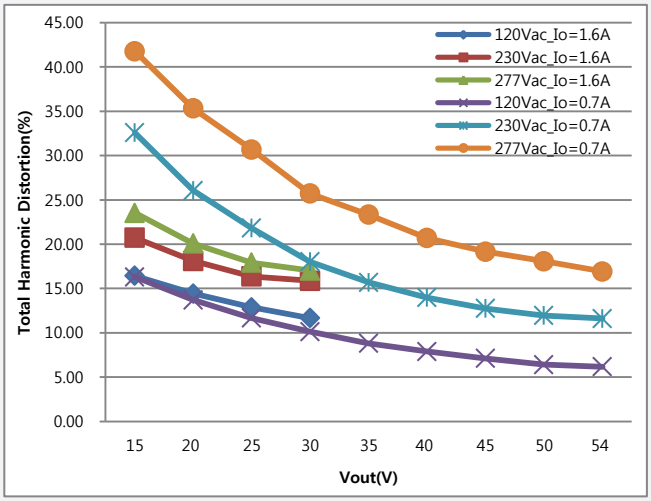
b) Efficiency vs. Load



c) PF vs. Load



d) THD vs. Load



3. Current setting manual by Programming tool

1. AC Power OFF the LED driver.
2. Provide external power 5V to Programming tool.
3. Connect between driver and Programming tool with mini-USB cable.

   Case 1) If LED indicators(LED_1, LED_2, …., LED_10) are turned on, go to **step.4**.

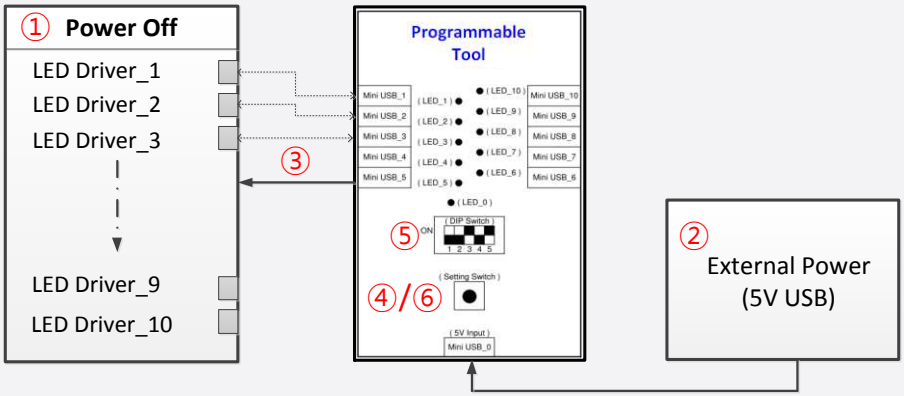
   Case 2) If LED indicators(LED_1, LED_2, …., LED_10) are turned off, go to **step.5**.
4. Reset(Un-program) stage

   Push 'Setting Switch' more than 4 seconds on the Programming tool.
5. Set the output current stage

   Setting 'Dip switch' according to below table
6. Program stage

   Push 'Setting Switch' more than 1~3 seconds on the Programming tool again.

   - If you want to change the output current value, return to **step 4**.
7. Disconnect the LED driver from Programming tool.



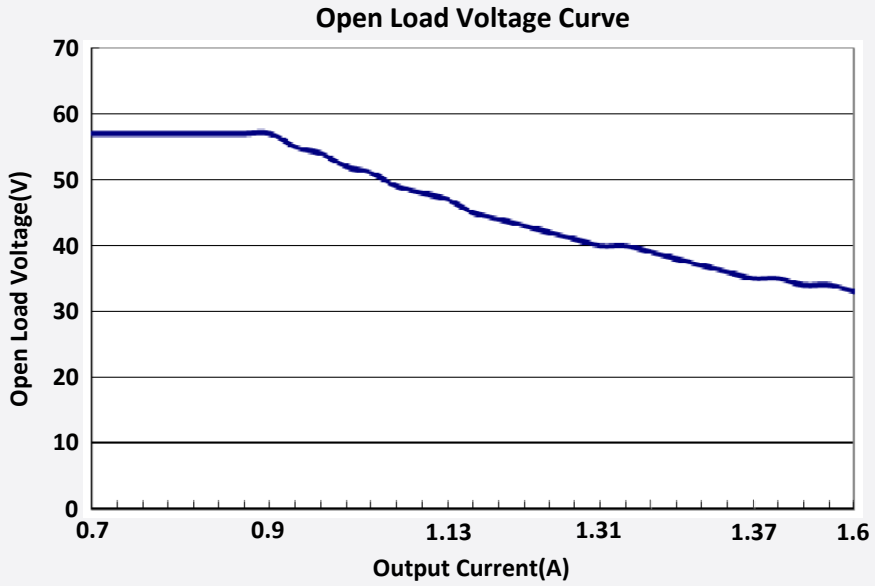
No.	Dip Switch					Output Current (A)	Tolerance (%)	Output Voltage Max. (Vdc)	No Load Voltage (Vdc)	Remark
	1	2	3	4	5					
---	0	0	0	0	0	---	± 5	---	---	TBD
1	0	0	0	0	1	0.700		15 - 54	58	Min. current
2	0	0	0	1	0	0.720		15 - 54	58	
3	0	0	0	1	1	0.750		15 - 54	58	
4	0	0	1	0	0	0.788		15 - 54	58	
5	0	0	1	0	1	0.816		15 - 54	58	
6	0	0	1	1	0	0.845		15 - 54	58	
7	0	0	1	1	1	0.875		15 - 54	58	
8	0	1	0	0	0	0.904		15 - 54	58	

No.	Dip Switch					Output Current (A)	Tolerance (%)	Output Voltage Max. (Vdc)	No Load Voltage (Vdc)	Remark
	1	2	3	4	5					
9	0	1	0	0	1	0.940		15 – 53	56	
10	0	1	0	1	0	0.970		15 – 52	55	
11	0	1	0	1	1	1.000		15 – 50	53	
12	0	1	1	0	0	1.030		15 – 49	52	
13	0	1	1	0	1	1.059		15 – 47	50	
14	0	1	1	1	0	1.088		15 – 46	49	
15	0	1	1	1	1	1.130		15 – 45	48	
16	1	0	0	0	0	1.160		15 – 43	46	
17	1	0	0	0	1	1.190		15 – 42	45	
18	1	0	0	1	0	1.220		15 – 41	44	
19	1	0	0	1	1	1.250		15 – 40	43	
20	1	0	1	0	0	1.280	± 5	15 – 39	42	
21	1	0	1	0	1	1.310		15 – 38	41	
22	1	0	1	1	0	1.342		15 – 38	41	
23	1	0	1	1	1	1.372		15 – 37	40	
24	1	1	0	0	0	1.410		15 – 36	39	
25	1	1	0	0	1	1.440		15 – 35	38	
26	1	1	0	1	0	1.472		15 – 34	37	
27	1	1	0	1	1	1.504		15 – 34	36	
28	1	1	1	0	0	1.536		15 – 33	36	
29	1	1	1	0	1	1.572		15 – 32	35	
30	1	1	1	1	0	1.590		15 – 32	35	
---	1	1	1	1	1	1.600		15 – 31	34	Max. current (Default value)

4. Protection

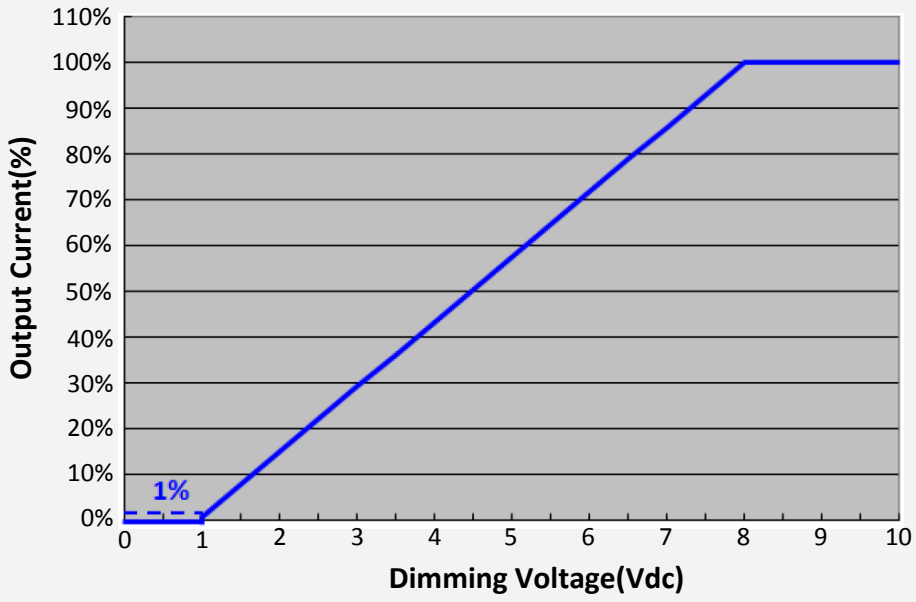
Protection Specification	Protection Mode	Condition
Output Short Protection	Auto-Recovery	(1) AC turn on then output short (2) Output short then AC turn on
Output Open Protection*	Clamp Open Load Voltage*	(1) AC turn on then output open (2) Output open then AC turn on
Output Temperature Protection	Latch	tc point : 95 ± 10℃
AC Transient Protection	Auto-Recovery	Vin = 120~277Vac range switching

* The open load voltage can be adjusted by output current value. Please refer to the below graph.



5. Dimming Specification

The unit has Analog Dimming(AD) function, using 1-10 Vdc. The typical dimming curve is shown below.



6. Reliability & Standards

a) International Standard

International Standard	Certification
UL Safety Standards (Class 2 Output)	UL 8750
Electro Magnetic Interference	FCC Part 15 Class B
Electrostatic Discharge (ESD): Contact ±4kV, Air ±8kV	IEC/EN 61000-4-2
Electrical Fast Transients (EFT)	IEC/EN 61000-4-4
Surge : Differential mode ±1KV, Common mode ±2KV	IEC/EN 61000-4-5
Touch Current	IEC/EN 61347

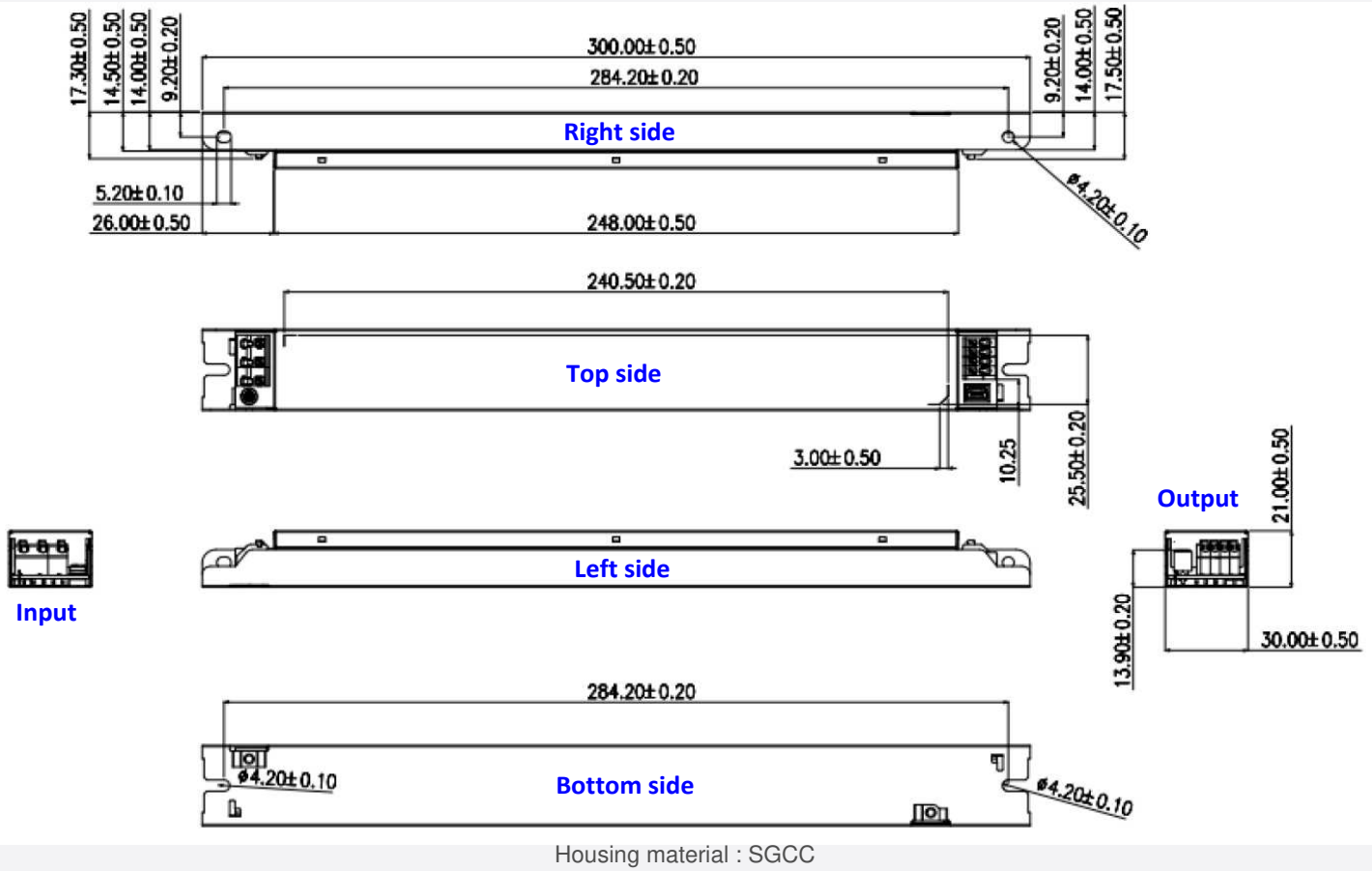
b) Test Items and Conditions

Test Item		Specification	Condition
Burn-In		2 hrs	Vin = 277Vac/50Hz, ta=35~45℃
Leakage Current		< 0.7 mA	
Earth Continuity		< 0.5 Ω	
EFT/Burst*		± 2kV, 5kHz, 1 mins above	
Hi-Pot	Input – Output	3000 Vac, 60 s, cut-off current 10 mA	3 seconds for mass production (3300Vac or 4666Vdc)
	Input – F.G	1500 Vac, 60 s, cut-off current 10 mA	3 seconds for mass production (1650Vac or 2333Vdc)
Insulation Resistance	Input – Output	500 Vdc, 60 s, Insulation resistance > 4 MΩ	3 seconds for mass production
	Input – F.G	500 Vdc, 60 s, Insulation resistance > 2 MΩ	
Surge*	L / N	±1 kV	
	LN / F.G	±2 kV	
ESD*	Contact	±4 kV	
	Air	±8 kV	

* The PSU should meets criteria B of that test.

7. Outline Drawing & Dimension

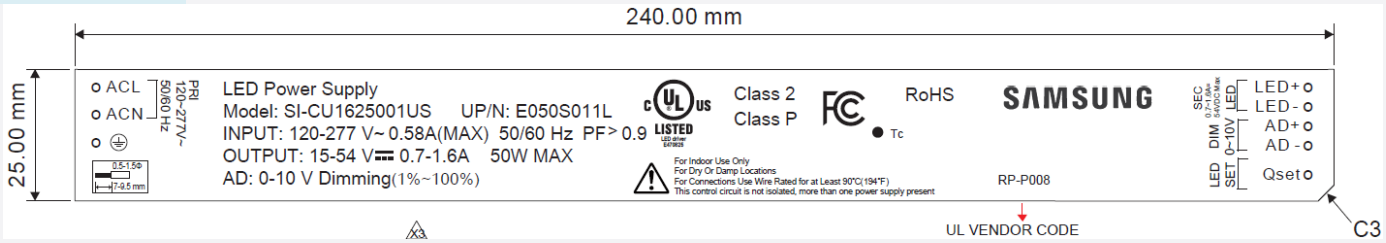
Dimension : 300 (L) x 30 (W) x 21 (H) Unit: mm



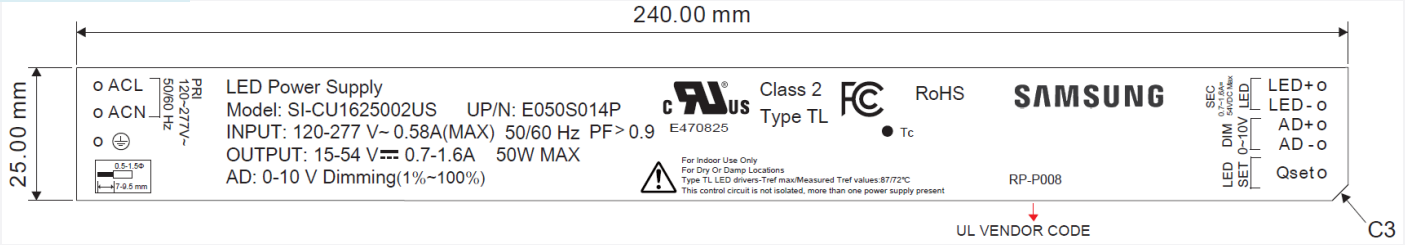
Housing material : SGCC

8. Label Structure

SI-CU1625001US



SI-CU1625002US



9. Packing Structure

Packing material	Driver Quantity (pcs)	Dimension (mm)		
		Length	Width	Height
Outer Box	28	483	385	148
Pallet	1008 (36 outer boxes)	1220	1020	1008

10. Precautions in Handling & Use

1) To prevent the LED Driver from any defect, please handle and store it with care
    - Do not drop or give shock
    - Do not store in very humid location or at extreme temperature
    - Do not open or disassemble the product
2) Static electricity or surge voltage may damage the components inside LED Driver, as such please observe proper anti-electrostatic working process
    - People handing the Driver should be well grounded (e.g. using ESD wrist band) and wear anti-static working clothes and gloves
    - All related devices and instruments in the production line should be well grounded (e.g. working table, measuring equipment, assembly jigs)
3) Observe the correct polarity of output terminal
4) Avoid input voltage exceeds the maximum rating, which will cause damage to the circuit and result in malfunction

Legal and additional information.

About Samsung Electronics Co., Ltd.

Samsung Electronics Co., Ltd 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 http://news.samsung.com.

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