

Programmable Power Supply with DALI

■ Product picture



■ Model Name

— PSDV151104B

■ Features :

- Suitable for LED lighting application
- Programmable Power Supply Unit(Adjustable Output Current)
- UL8750/UL1012(Non Class 2)
- Suitable for dry and damp locations
- Full-protection provided : OCP/OLP/OTP/SCP
- DALI Control
- Potting product



IP 67

SAMSUNG ELECTRO-MECHANICS CO., LTD

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■ Electrical specification

No.	Item	Min	Typ	Max	Unit	Remark
1	Nominal Input Voltage	120		277	Vac	
2	Wide Input Voltage	108		305	Vac	
3	Maximum Input Current			2	Arms	
4	Nominal Input Frequency	50		60	Hz	
5	Wide Input Frequency	47		63	Hz	
6	Power Factor (PF)	0.9				1)
7	Total Harmonic Distortion (THD)			20	%	1)
8	Inrush Current	NEMA410				8)
9	Earth Leakage Current			500	μA	
10	Output Voltage	50		100	Vdc	
11	Adjustable Output Current Range	750		1500	mA	
12	Output Current	1425	1500	1575	mA	±5%
13	Output Current Ripple			10	%	1)
14	Output Peak Current			1700	mA	Cold start, 1)
15	Output Aging Current Differential			1650	mA	2hr Aging
16	Turn-on Delay Time			750	ms	2)
17	Dimming Control	10		100	%	
18	Electrical Efficiency	91			%	3)
19	Output Open LED Protection	-	-	-	Vdc	Auto-recovery
20	Output Short Circuit Protection	-	-	-	-	Auto-recovery
21	Over-temperature Protection	105			°C	Auto-recovery
22	Case Temperature (Tc)			85	°C	@Amb.50°C, Input 120Vac, Load(Typ.)
23	Storage Temperature	-40		90	°C	
24	Operating Temperature	-40		50	°C	
25	Insulation Resistance	100			MΩ	500Vdc between Input & Output
26	Differential Mode (Line to Line)	-4		4	kV	4)
27	Common Mode (Line to Ground)	-6		6	kV	4) 5)
28	Contact Discharge Test Voltage	-4		4	kV	6)
29	Air Discharge Test Voltage	-8		8	kV	6) 7)
30	Dielectric Withstand Voltage	Input to Output	3854		Vac	Apply for 1 minute 9)
31		Input to Case	1554		Vac	
32		Output to Case	500		Vdc	

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No.	Item	Min	Typ	Max	Unit	Remark
32	Vibration			3	G	
33	Humidity			90	%	

☞ Application Notes

- 1) Test Condition: 120/277Vac 50/60Hz Input, LED Full Load, Ambient Temperature 25°C, at cold start
- 2) Test Condition: Input voltage 277Vac 60Hz, Room Temperature, at cold start
- 3) Test Condition: @240~277Vac Input, 1hr Aging, LED Full Load and I_{max}, Ambient Temperature 25°C
- 4) Surge Specification above is higher than IEC/EN 61000-4-5 (Line to Line 1kV, Line to GND 2kV)
- 5) The metal case of the LED driver must be connected with F.G
- 6) ESD Specification above meets IEC/EN 61000-4-2 Requirements (Contact 4kV, Air 8kV)
- 7) The metal case of the driver should be grounded.
- 8) Input 120Vac, < 144A_{peak}, < 0.7ms, < 41A_{2sec}
- 9) Determined by Paragraph 8.4.2, UL8750, IEC/EN61347-1, IEC/EN61347-2-13

☞ Safety Standards

Including safety requirements above, the LED driver complies with the following safety standards:

No.	Item	Description
1	UL8750, UL1012	UL Safety Standards, Non Class 2(Dry and Damp locations)
3	FCC Part 15	Conducted and Radiated Emission Test
4	IEC/EN 61000-3-2	Harmonic current emissions: Class C
5	IEC/EN 61000-3-3	Voltage Fluctuations and Flicker
6	IEC/EN 61000-4-2	Electrostatic Discharge (ESD): Contact 4kV, Air 8kV
7	IEC/EN 61000-4-3	Radio-frequency Electromagnetic Fields
8	IEC/EN 61000-4-4	Electrical Fast Transients (EFT)
9	IEC/EN 61000-4-5	Surges: Differential 1kV, Common 2kV
10	IEC/EN 61000-4-6	Injected Currents
11	IEC/EN 61000-4-8	Power Frequency Magnetic Fields
12	IEC/EN 61000-4-11	Voltage Dips and Short Interruptions

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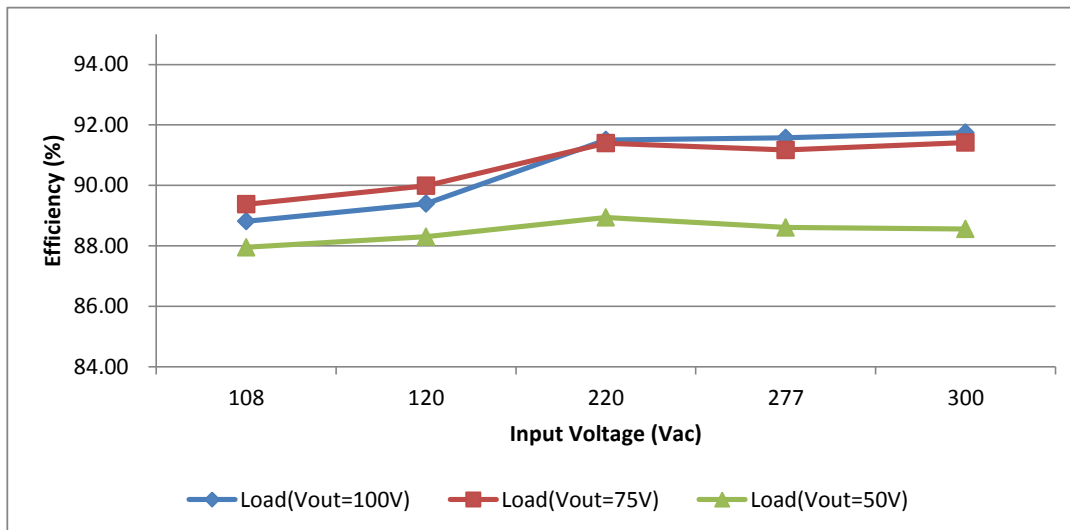
150W Single Output Power Driver for LED Lighting

PSDV151104B

■ Life Time vs Tcase

-TBD

■ Efficiency(%) (LED Current = 1500mA)



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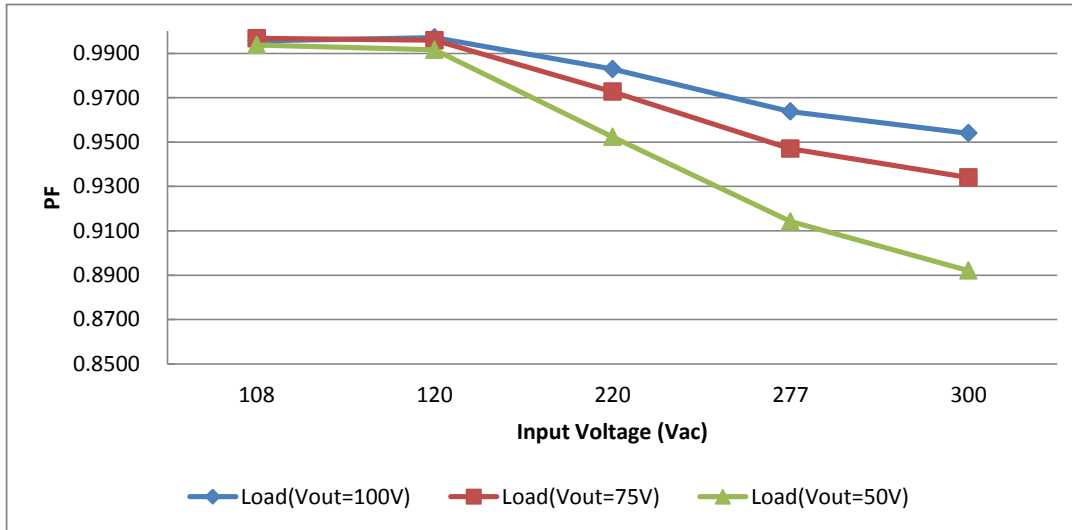
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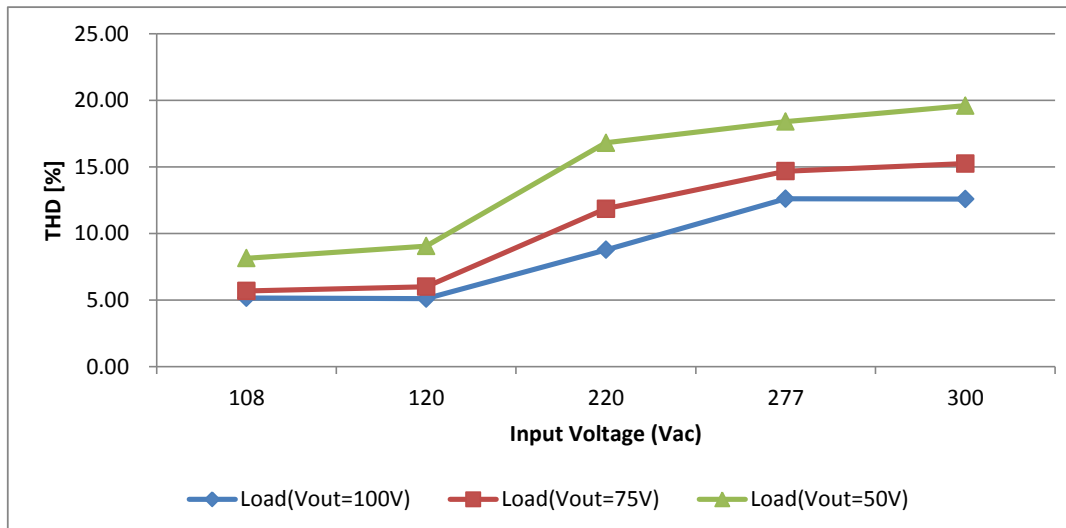
150W Single Output Power Driver for LED Lighting

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■ Power Factor (LED Current = 1500mA)



■ THD(%) (LED Current = 1500mA)



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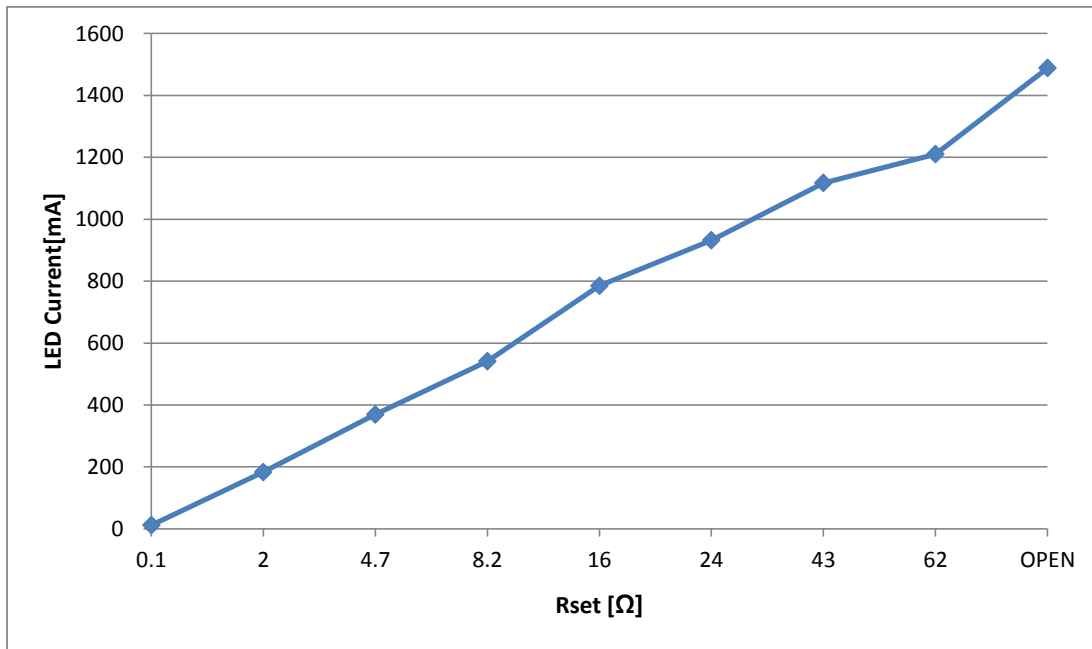
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■ Rset vs. Electrical Characteristics

Rset [kΩ]	Input				Output			
	Crnt [A]	PF	THD [%]	Power[W]	Vltg [V]	Crnt [mA]	Power[W]	Efficiency [%]
0.1	0.073	0.345	21.70	5.7	82.0	12	1.0	17.26%
2	0.137	0.77	31.70	23.5	87.5	183	16.0	68.25%
4.7	0.216	0.881	26.00	42.2	91.0	369	33.6	79.57%
8.2	0.291	0.923	21.60	59.4	92.8	541	50.2	84.52%
16	0.400	0.953	16.60	84.5	94.9	785	74.5	88.16%
24	0.470	0.963	14.20	100.0	96.1	932	89.6	89.57%
43	0.557	0.972	11.80	119.8	97.1	1117	108.5	90.53%
62	0.598	0.9757	10.90	129.3	97.3	1210	117.7	91.05%
OPEN	0.741	0.9829	5.10	161.0	99.0	1488	147.3	91.50%

■ Adjustable Of Current



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■ Support for DALI control

IEC62386-102 Test Items	
1. Physical operational parameters	
1.1 Waveform	
1.1.1 Current rating	
1.1.2 Voltage rating	
1.1.3 Back channel rise time / fall time	
1.1.4 Transmission rate	
1.1.5 Pulse width	
1.1.6 Code violation	
1.2 Frame structure timing	
1.3 Insulation test	
1.4 Optional test sequences	
1.4.1 Polarity	
1.4.2 Overvoltage protection	
1.5 Response time	
2. Configuration commands	
2.1 General configuration commands	
2.1.1 RESET	
2.1.2 RESET: timeout / command in-between	
2.1.3 100ms-timeout	
2.1.4 Commands in-between	
2.1.5 QUERY VERSION NUMBER	
2.1.6 STORE ACTUAL LEVEL IN THE DTR	
2.1.7 Persistent memory	
2.1.8 DTR1	
2.1.9 DTR2	
2.2 Arc power parameter settings	
2.2.1 STORE THE DTR AS MAX LEVEL	
2.2.2 STORE THE DTR AS MIN LEVEL	
2.2.3 STORE THE DTR AS SYSTEM FAILURE LEVEL	
2.2.4 STORE THE DTR AS POWER ON LEVEL	
2.2.5 STORE THE DTR AS FADE TIME	
2.2.6 STORE THE DTR AS FADE RATE	
2.2.7 STORE THE DTR AS SCENE / GO TO SCENE	

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IEC62386-102 Test Items	
2.3 System parameter settings	
2.3.1 REMOVE FROM SCENE	
2.3.2 ADD TO GROUP / REMOVE FROM GROUP	
2.3.3 STORE THE DTR AS SHORT ADDRESS	
2.4 Memory Access	
2.4.1 Memory Bank 0	
2.4.2 Memory Bank 1	
2.4.3 Other Memory Banks	
2.4.4 ENABLE WRITE MEMORY	
3. Arc power control commands	
3.1 Timing	
3.1.1 FADE TIME	
3.1.2 FADE RATE	
3.2 Dimming curve	
3.2.1 Logarithmic dimming curve	
3.2.2 Dimming curve: DIRECT ARC POWER CONTROL	
3.2.3 Dimming curve: UP / DOWN	
3.2.4 Dimming curve: STEP UP / STEP DOWN	
3.2.5 Dimming curve: DAPC SEQUENCE	
3.3 Arc power commands	
3.3.1 OFF	
3.3.2 DIRECT ARC POWER CONTROL	
3.3.3 UP	
3.3.4 DOWN	
3.3.5 STEP UP	
3.3.6 STEP DOWN	
3.3.7 RECALL MAX LEVEL	
3.3.8 RECALL MIN LEVEL	
3.3.9 ON AND STEP UP	
3.3.10 STEP DOWN AND OFF	
4. Physical address allocation	
5. Random address allocation	
5.1 INITIALISE / TERMINATE	
5.1.1 INITIALISE: 15 minutes timer	

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IEC62386-102 Test Items	
5.1.2 TERMINATE	
5.1.3 INITIALISE: short address	
5.1.4 INITIALISE: no short address	
5.1.5 INITIALISE: 100 ms timeout	
5.1.6 INITIALISE: command in-between	
5.2 RANDOMISE	
5.2.1 RANDOMISE: reset values	
5.2.2 RANDOMISE: 100 ms timeout	
5.2.3 RANDOMISE: command in-between	
5.3 COMPARE / WITHDRAW	
5.3.1 COMPARE	
5.3.2 WITHDRAW	
5.4 PROGRAM / VERIFY / QUERY SHORT ADDRESS	
5.4.1 PROGRAM SHORT ADDRESS	
5.4.2 VERIFY SHORT ADDRESS	
5.4.3 QUERY SHORT ADDRESS	
5.4.4 SEARCH ADDRESS: reset value	
6. Queries and reserved commands	
6.1 Queries	
6.1.1 QUERY DEVICE TYPE	
6.1.2 QUERY LAMP FAILURE	
6.1.3 QUERY LAMP POWER ON	
6.1.4 QUERY LIMIT ERROR	
6.1.5 QUERY POWER FAILURE	
6.1.6 QUERY STATUS: control gear ok	
6.1.7 QUERY STATUS: fade running	
6.2 Reserved commands	
6.2.1 RESERVED: standard commands	
6.2.2 Application extended commands	
6.2.3 RESERVED: special commands 1	
6.2.4 RESERVED: special commands 2	
6.2.5 Not supported device types	

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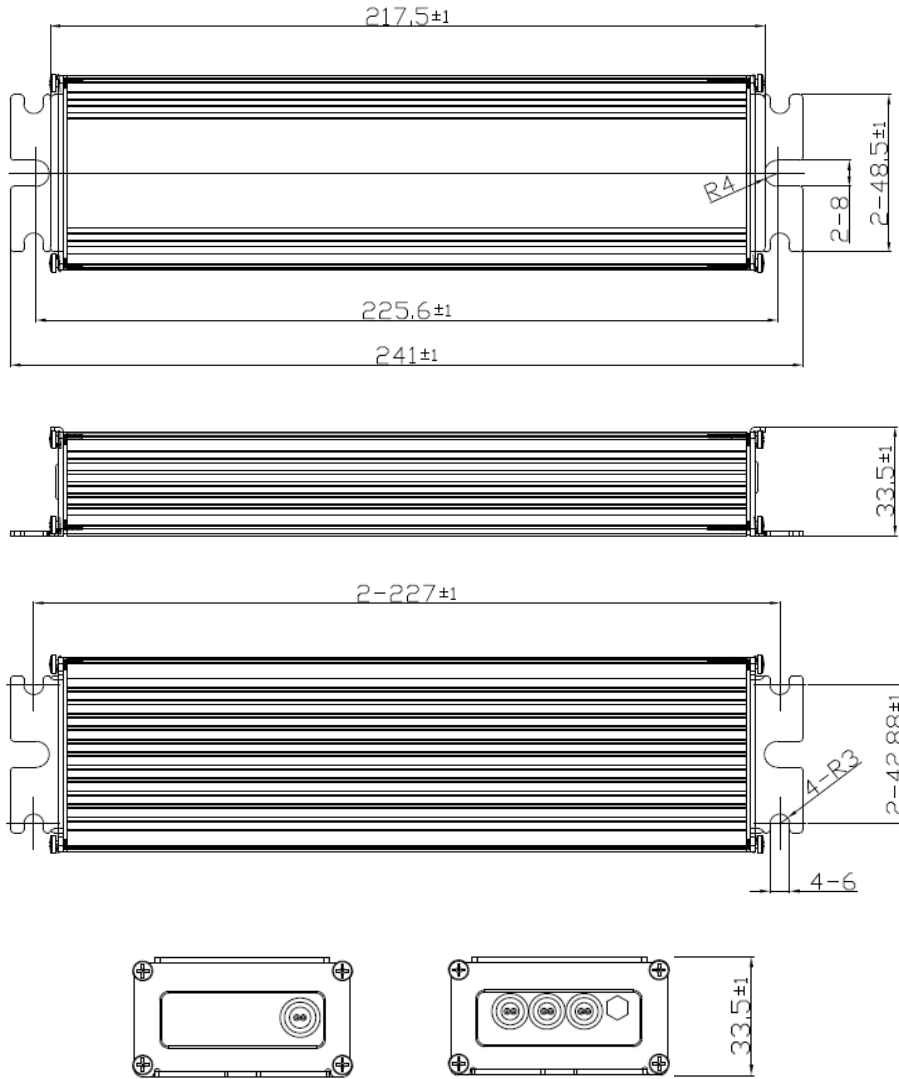
IEC62386-207 Test Items	
7. APPLICATION EXTENDED COMMANDS FOR DEVICE TYPE 6	
7.1 APPLICATION EXTENDED QUERY COMMANDS	
7.1.1 QUERY FEATURES	
7.1.2 QUERY SHORT CIRCUIT	
7.1.3 QUERY OPEN CIRCUIT	
7.1.4 QUERY LOAD DECREASE	Optional
7.1.5 QUERY LOAD INCREASE	Optional
7.1.6 QUERY CURRENT PROTECTOR ACTIVE: Underload	Optional
7.1.7 QUERY CURRENT PROTECTOR ACTIVE: Overload	Optional
7.1.8 QUERY THERMAL SHUT DOWN	Optional
7.1.9 QUERY THERMAL OVERLOAD	Optional
7.1.10 Query control gear information	
7.2 APPLICATION EXTENDED CONFIGURATION COMMANDS	
7.2.1 REFERENCE SYSTEM POWER	Optional
7.2.2 REFERENCE SYSTEM POWER: 100 ms-timeout	Optional
7.2.3 REFERENCE SYSTEM POWER: Command in-between	Optional
7.2.4 REFERENCE SYSTEM POWER: 15 minutes timer	Optional
7.2.5 REFERENCE SYSTEM POWER: failed	Optional
7.2.6 ENABLE / DISABLE CURRENT PROTECTOR	Optional
7.2.7 SELECT DIMMING CURVE	
7.2.8 FAST FADE TIME	
7.2.9 Reset State / Persistent Memory	
7.3 ENABLE DIVICE TYPE	
7.3.1 ENABLE DIVICE TYPE: Application extended commands	
7.3.2 ENABLE DIVICE TYPE: Application extended configuration commands 1	
7.3.3 ENABLE DIVICE TYPE: Application extended configuration commands 2	
7.4 Standard application extended commands	
7.4.1 QUERY EXTENDED VERSION NUMBER	
7.4.2 RESERVED APPLICATION EXTENDED COMMANDS	

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■ Mechanical Specification



■ Enclosure Size

Unit	Case Width	Case Length	Case Height	Mounting Width	Mounting Length	Overall Length
mm	60	211	32	42.9	226	240
inch	2.362	8.307	1.26	1.689	8.898	9.449

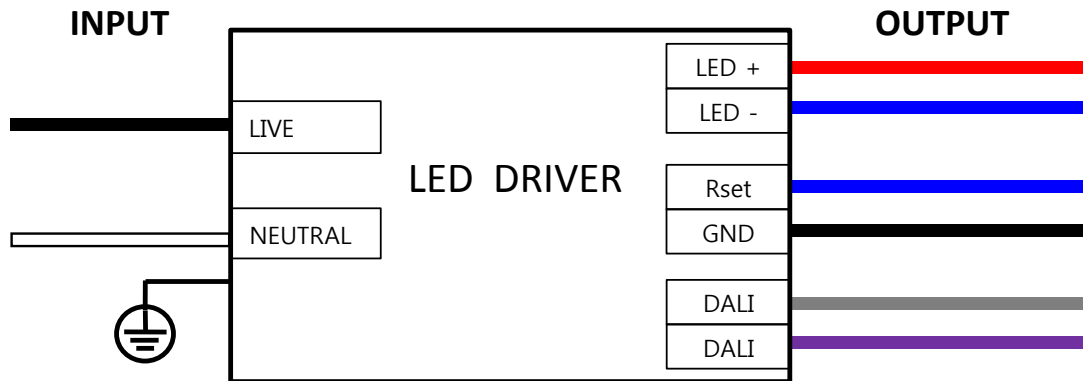
■ Case Material : Aluminium

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■ Wiring Diagram



Remark) Output wiring specifications can be changed.

■ Rating Label Drawing

	<p>LED Driver Model : PSDV151104B</p>	<p>DIAGRAM OF INPUT/OUTPUT CONNECTION:</p>
<p>INPUT : 120-277 V~, 50/60 Hz, 170W, Max 2.0A, λ(PF)=0.9 OUTPUT : 50-100 V --- / 1500mA (constant current type) CONTROL : DALI $t_c = 85^\circ\text{C}$</p>	<p>CAUTION : Suitable for dry and damp locations. Do not open the case, hazardous voltage inside. Install in accordance with national and local electrical code. This product is used for LED module only.</p>	<p>t_c </p>
<p>Made in China Dongguan SAMSUNG ELECTRO-MECHANICS Technical Support : www.sem.samsung.com</p>		

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