

## LED Driver

# Outdoor 50W Driver SL-LA1425002US



## Constant Current LED Driver

### Features & Benefits

- Output Current Range: 1400mA Fixed
- Output Voltage Range: 18 ~ 36Vdc
- Output Power Range: Max 50 W
- Dimming Control: 0-10 V
- Input Voltage: 120 ~ 277 Vac, 50/60 Hz
- Safety: UL / cUL(UL 8750, UL Class 2)
- EMI: FCC Part 15 Class B
- Protections: Short Circuit, Over Voltage Protection
- $t_a$  Range: -40 ~ +70 °C
- Expected lifetime: 50,000 hours at  $t_c < 75$  °C
- Environmental Compliance: RoHS
- Long lasting & high reliability
- Metal housing



### Applications

- Outdoor lighting

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## 1. Characteristics

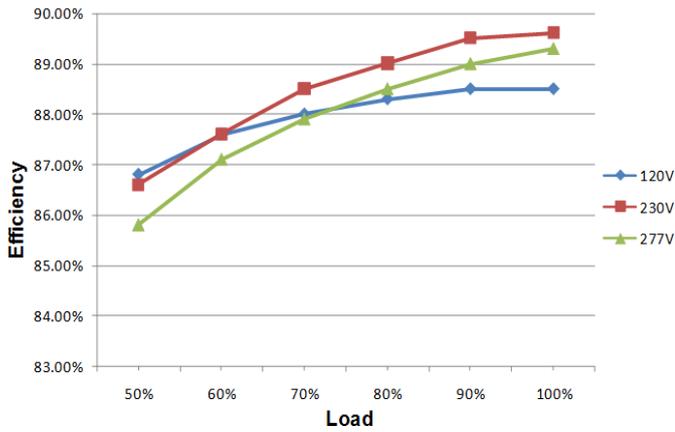
Article	Symbol	Specification			Unit	Note
		Min.	Typ.	Max.		
<b>INPUT SPECIFICATIONS</b>						
Nominal Voltage	V <sub>in</sub>	120		277	Vac	
Nominal Frequency	F <sub>in</sub>		50 / 60		Hz	
Input Current	At 110 Vac	I <sub>in</sub>		0.7	A	At full load
	At 277 Vac	I <sub>in</sub>		0.3	A	At full load
Total Harmonic Distortion	THD			20	%	At 120-277 Vac
Power Factor	PF	0.9			-	1) At 120-277 Vac
Efficiency	η	86	88		%	2) 110Vac/ 60 Hz, 100% Load
		86	88			277Vac/ 60 Hz, 100% Load
In-rush Current				50	A <sub>pk</sub>	@ 277Vac input, 25°C Cold start.
<b>OUTPUT SPECIFICATIONS</b>						
Voltage Range	V <sub>o</sub>	18		36	Vdc	
Max. Voltage				50	Vdc	Open circuit, No-load protection No Hot plug protection
Current Range	I <sub>o</sub>	1330	1400	1470	mA	0-10 Fixed current
Nominal Power	P <sub>o</sub>			50	W	
Turn-on Delay Time	T <sub>d</sub>			1	s	

- 1) PF, THD can meet the electrical performance from 80% of MA X power.
- 2) Measured the unit is thermally stabilized after half an hour, Ta 25°C.

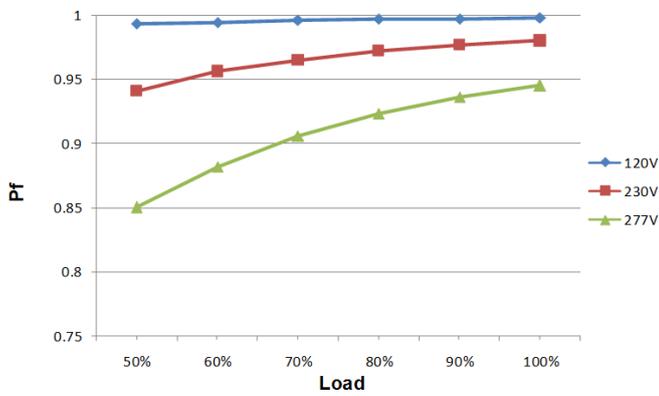
Article	Symbol	Specification			Unit	Note
		Min.	Typ.	Max.		
<b>DIMMING SPECIFICATIONS</b>						
Vdc		0		10	V	See Dimming Specification section
Dimming voltage		1		8.5	V	
<b>ENVIRONMENTAL SPECIFICATIONS</b>						
Operating Temperature	$t_a$	-40		70	°C	
Operating Humidity		20		95	%	Not condensing
Storage Temperature	$t_s$	-40		85	°C	
Storage Humidity		10		95	%	Not condensing
Case Temperature	$t_c$			88.9	°C	
Surge Transient Protection	L / N			±4	kV	IEC 61000-4-5
	LN / GND			±6	kV	
IP Rating			IP67		-	Suitable for indoor environment
Expected Lifetime (e-cap)		50,000			h	At $t_c = 75^\circ\text{C}$ , full load, 120-277 Vac
MTBF			300,000			
Dimensions	L x W x H		193 x 42.5 x 34.5		mm	
Net Weight			550		g	

## 2. Typical Characteristics Graphs

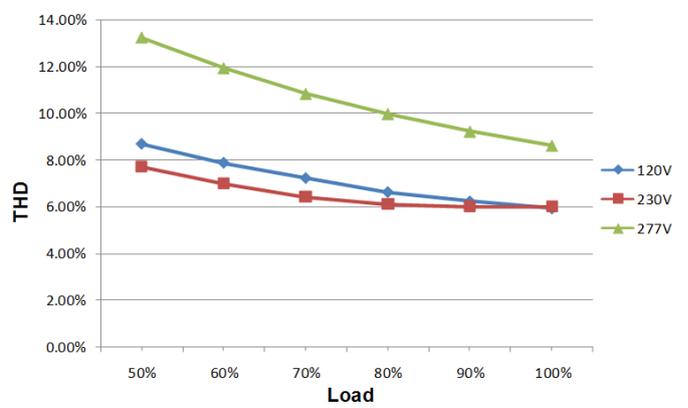
### a) Efficiency vs. Load



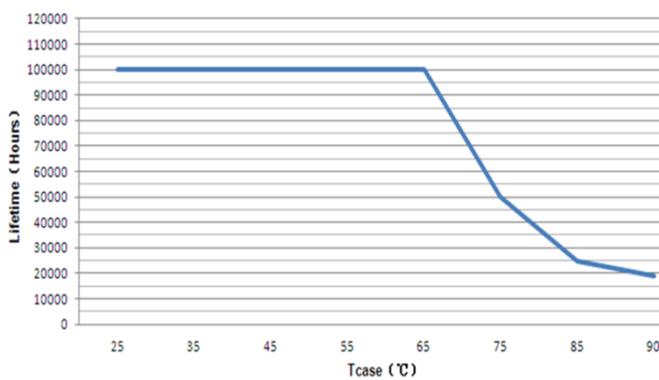
### b) Power Factor vs. Load



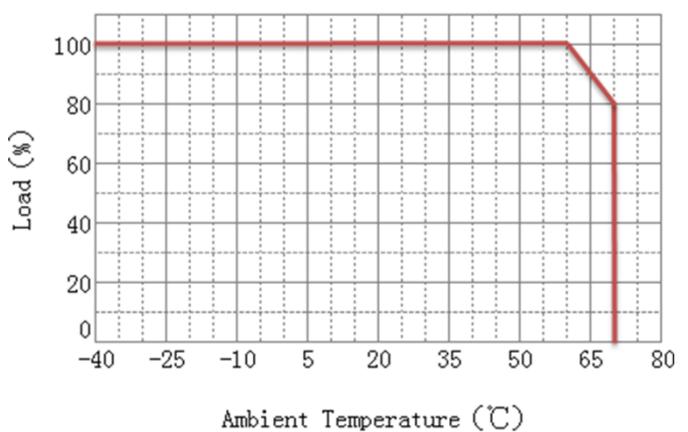
### c) Total Harmonic Distortion vs. Load



### d) Lifetime vs. Tc



### e) Ta de-rating according to the load condition



## 3. Protection

### a) Output Short Circuit Protection

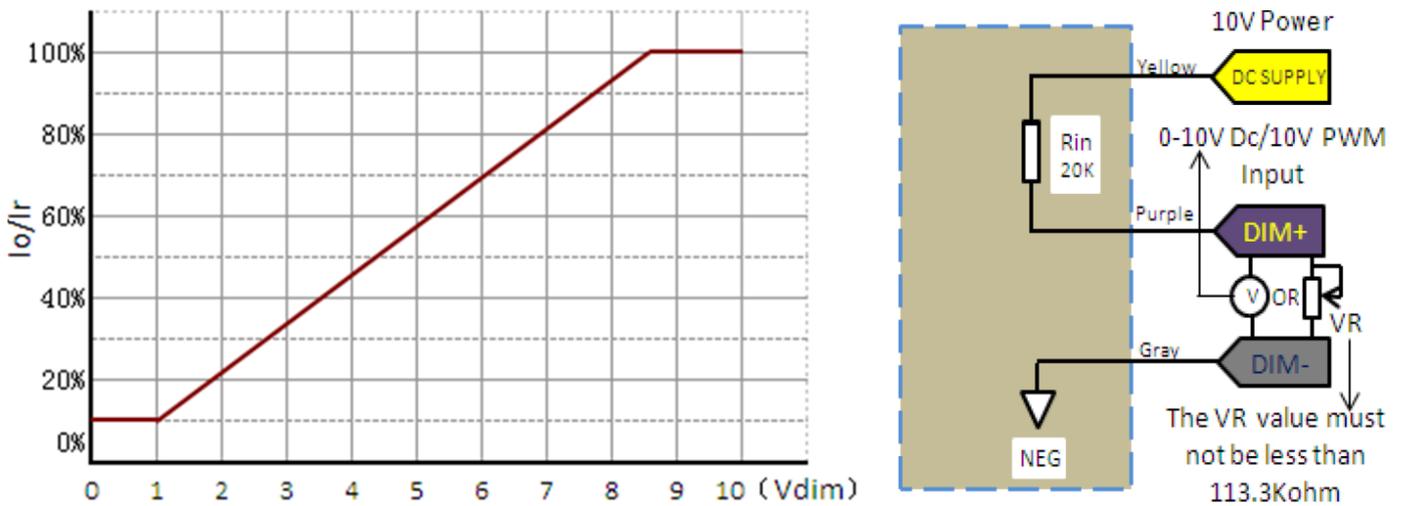
The unit is protected when output is short thus avoiding safety hazard, shock hazard and damage to the unit. After the short circuit fault condition is removed, the unit will enter the auto-recovery mode.

### b) Output Over Voltage Protection

When no load condition occurs, the unit will clamp output voltage to the OVP Voltage avoiding damage to the unit ( $V_{out} < 50V$ ). After the load is connected, the unit will enter the auto-recovery mode.

## 4. Dimming Specification

The unit has Analog Dimming (AD) function, using 0-10 Vdc. The typical dimming curve is shown below.



ARTICLE	SYMBOL	UNIT	MIN	TYP.	MAX	REMARKS
Dimming	Range	Vdc	1	-	8.5	
	Dim OFF		-		-	No Off mode
	Dim. MIN	Vdc	1	-		
	Dim. MAX	Vdc	8.5		10	

## 5. Reliability& Standards

### Test Items and Conditions

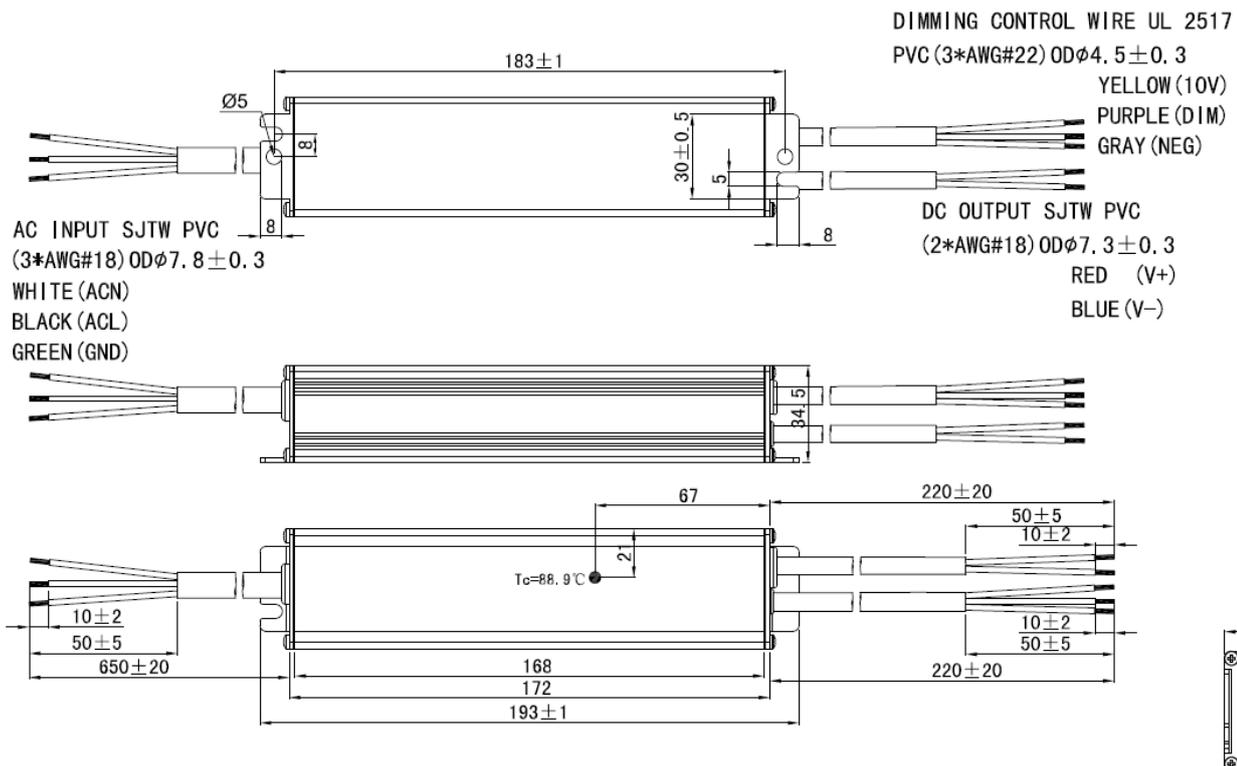
Test Item	Specification	Condition	
Leakage Current	< 0.7 mA	$V_{in}=300V$ $F_{in}=60Hz$	
Earth Continuity	< 0.5 $\Omega$	According to IEC/EN 61347	
Hi-Pot	Input – Output	3750 Vac, 60 s, cut-off current 10 mA	100 % tested in production line
	Input – F.G	1857 Vac, 60 s, cut-off current 10 mA	100 % tested in production line
	Output – F.G	1500 Vac, 60 s, cut-off current 10 mA	100 % tested in production line
Insulation Resistance	Input – Output	500 Vdc, 60 s, insulation resistance 10 M $\Omega$	100 % tested in production line
Surge	L / N	$\pm 4$ kV	According to IEC 61000-4-5
	LN / GND	$\pm 6$ kV	
ESD	Contact	$\pm 8$ kV	According to IEC 61000-4-2
	Air	$\pm 15$ kV	

## Safety, EMI and EMC

International Standard	Certification
IEC/EN Safety Standards for LED Lighting	IEC/EN 61347-1, IEC/EN 61347-2-13
UL Safety Standards (Class 2 Output)	UL 8750, UL1310 Class 2
	CAN/CSA-C22.2 No. 250.13-12 CAN/CSA-C22.2 No.107.1-01
Conducted and Radiated Emission Test	IEC/EN 55015
Harmonic current emissions: Class C	IEC/EN 61000-3-2
Voltage Fluctuations and Flicker	IEC/EN 61000-3-3
Electrostatic Discharge (ESD) Contact 8kV, Air 15kV	IEC/EN 61000-4-2
Radio-frequency Electromagnetic Fields	IEC/EN 61000-4-3
Electrical Fast Transients (EFT)	IEC/EN 61000-4-4
Surges: Differential 4kV, Common 6kV	IEC/EN 61000-4-5
Injected Currents, Conducted disturbances induced by Radio-Frequency fields	IEC/EN 61000-4-6
Power Frequency Magnetic Fields	IEC/EN 61000-4-8
Voltage Dips and Short Interruptions ( Class B )	IEC/EN 61000-4-11

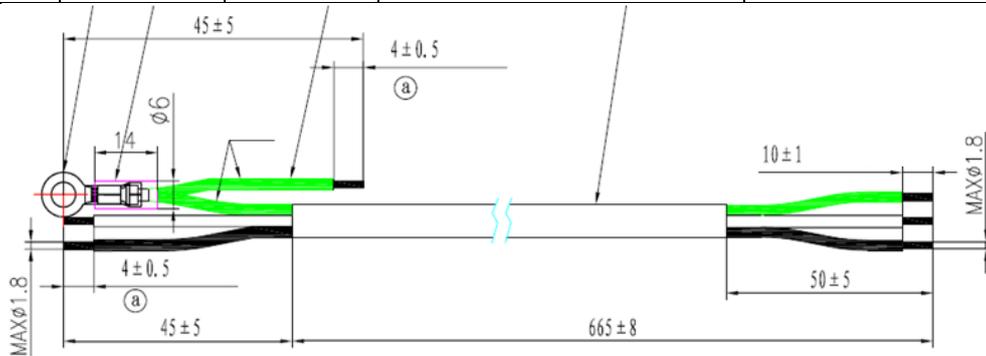
## 6. Outline Drawing &amp; Dimension

Dimension :193 (L) x 42.5 (W) x 34.5 (H) Unit: mm



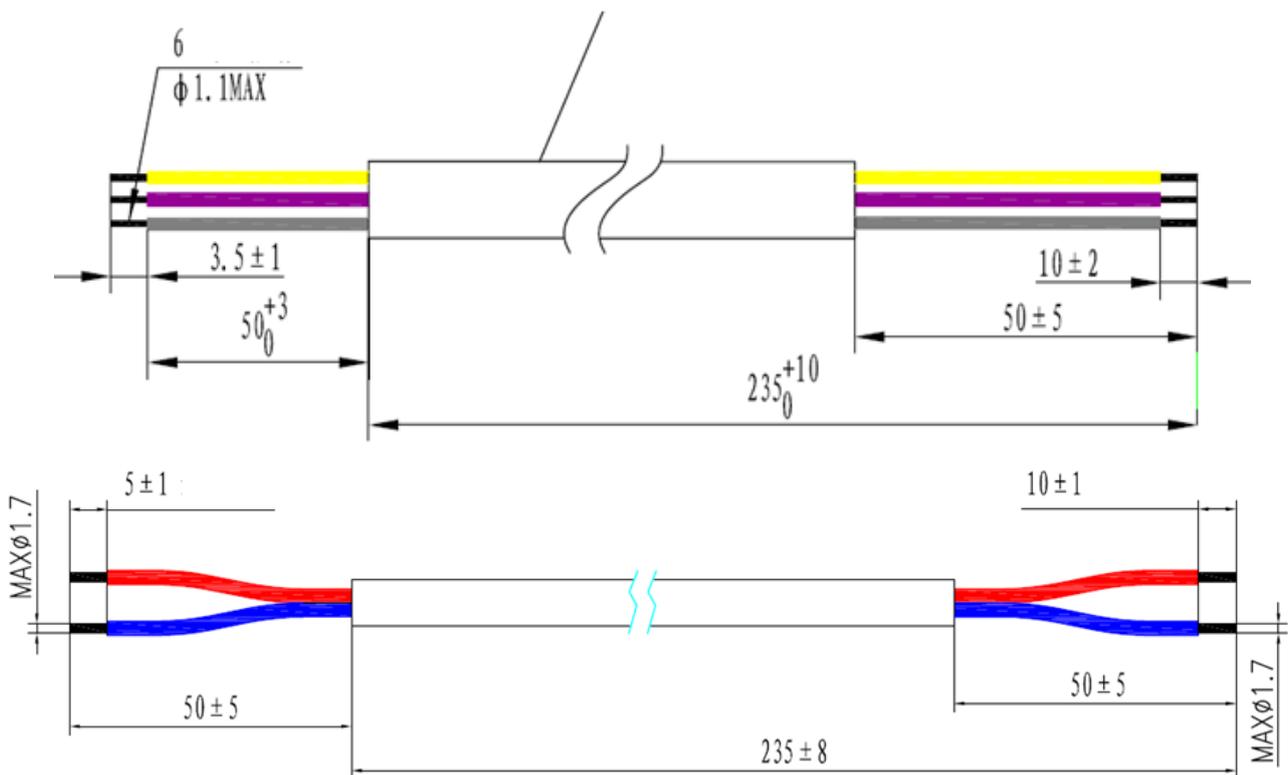
## Input harness

WIRE	SYMBOL	COLOR	DESCRIPTION	Cable
1	L	Black	Live	SJTW PVC,18AWG
2	N	White	Neutral	
3	FG	Green	GND	

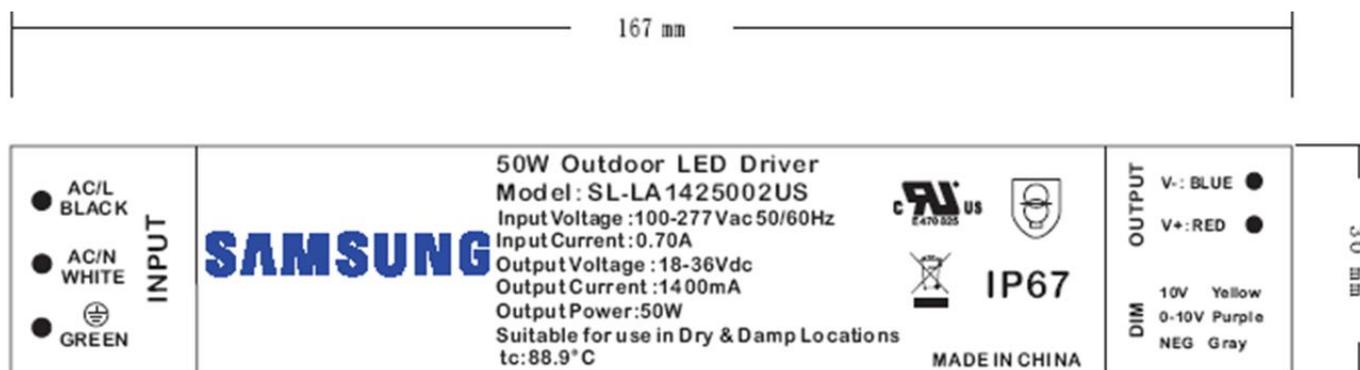


## Output harness

WIRE	SYMBOL	COLOR	DESCRIPTION	Cable
1	10V	Yellow	Auxiliary 10V	UL 2517,22AWG
2	Dim+	Purple	External Dimming Input Port(0~10V)	
3	Dim-	Grey	External Dimming Input Port(Ground)	
4	V+	Red	Positive(Anode)LED output +	SJTW PVC,18AWG
5	V-	Blue	Negative(Cathode)LED output -	

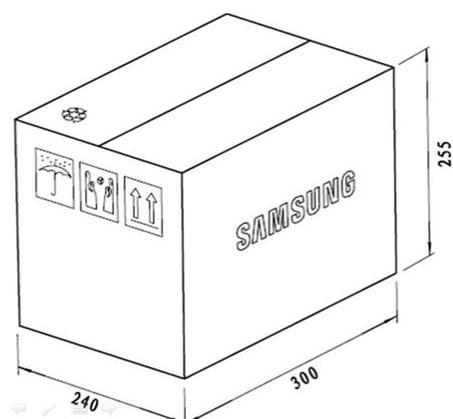
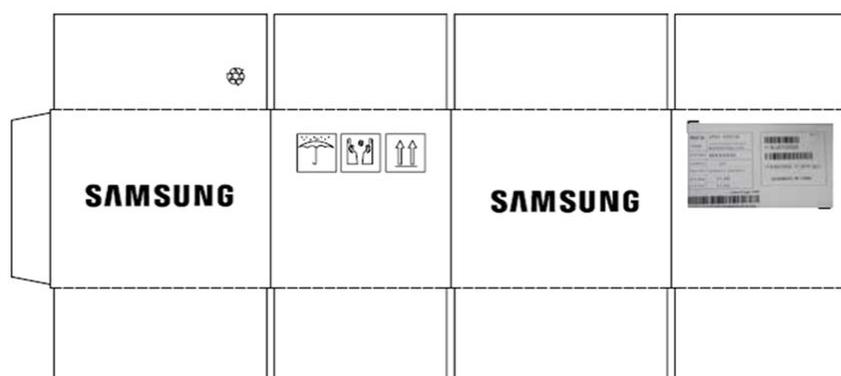


## 7. Label Structure



## 8. Packing Structure

Packing material	Max. quantity (pcs)	Dimension (mm)		
		Length	Width	Height
Outer Box	20	300	240	255
Pallet	1280 (64 outer boxes)	1,219	1,016	1152



## 9. Precautions in Handling & Use

- 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
- Static electricity or surge voltage may damage the components inside LED Driver, as such please observe proper anti-electrostatic working process
  - People handling 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)
- Observe the correct polarity of output terminal
- Avoid input voltage exceeds the maximum rating, which will cause damage to the circuit and result in malfunction

# Legal and additional information.

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