

## LED Driver

# Outdoor 78W Driver

SL-LU2027801US (UL Type TL)

SL-LU2027802US (UL Class P)



## Constant Current LED Driver

### High Efficiency Constant Current LED Driver With Active Power Factor Correction

#### Features & Benefits

- Output Current Range: 2000 mA Fixed
- Output Voltage Range: 30 ~ 39 Vdc
- Output Power Range: Max. 78 W
- Dimming Control: 0 - 10 Vdc
- Input Voltage: 120 ~ 277 Vac, 50 / 60 Hz
- Safety: UL / cUL (UL 8750, CSA C22.2 No.223-M91)
- EMI: FCC Part 15 Class B
- Protections: Short Circuit, Open Load Voltage, Over Temperature
- $t_a$  Range: -40 ~ +70 °C
- Expected lifetime: 50,000 hours at  $t_c < 75$  °C
- Environmental Compliance: RoHS
- Long lasting & high reliability
- Metal housing

#### Applications

- LED Street/Tunnel Lighting and Outdoor LED Lighting



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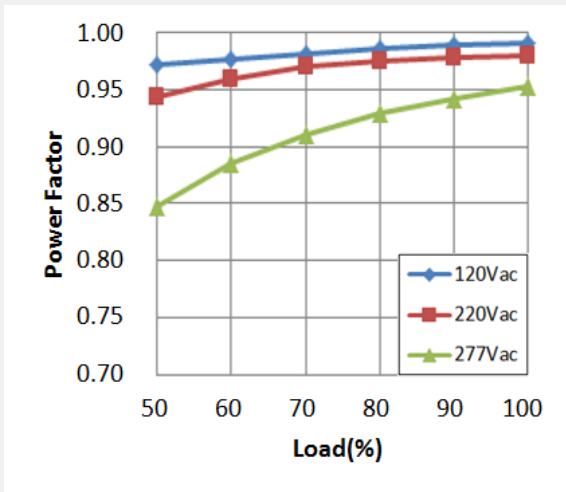
## 1. Characteristics

Article	Symbol	Specification			Unit	Note
		Min.	Typ.	Max.		
<b>INPUT SPECIFICATIONS</b>						
Nominal Voltage	V <sub>in</sub>	120~277			Vac	
Voltage Range		108		305		
Nominal Frequency	F <sub>in</sub>	50 / 60			Hz	
Frequency Range		47		63		
Input Power	P <sub>in</sub>			100	W	V <sub>in</sub> = 120 ~ 277Vac, 100% load
Input Current	I <sub>in</sub>			1.0	A	V <sub>in</sub> = 120Vac, 100% load
				0.4	A	V <sub>in</sub> = 277Vac, 100% load
Total Harmonic Distortion	THD			20	%	V <sub>in</sub> = 120 ~ 277Vac, 80 ~ 100% load
Power Factor	PF	0.9			-	
Efficiency	η	86	88		%	V <sub>in</sub> = 120Vac, 100% load
		85	87			V <sub>in</sub> = 277Vac, 100% load
In-rush Current				65	A <sub>pk</sub>	V <sub>in</sub> = 300Vac, 25°C Cold start T <sub>width</sub> =500us measured at 50%I <sub>pk</sub>
Leakage Current				0.7	mA	V <sub>in</sub> = 300Vac
<b>OUTPUT SPECIFICATIONS</b>						
Output Voltage	V <sub>o</sub>	30		39	V <sub>dc</sub>	
Max. Voltage	V <sub>p</sub>			48		No-load condition
Output Current	I <sub>o</sub>		2000		mA	Tolerance = ±5%I <sub>o</sub>
Output Peak Current	I <sub>p</sub>			2700	mA	V <sub>in</sub> = 120 ~ 277Vac, 100% load
Output Ripple Current	I <sub>ripple</sub>			600	mA	V <sub>in</sub> = 120 ~ 277Vac, 100% load
Line/Load Regulation		-3		+3	%	V <sub>in</sub> = 120 ~ 277Vac
Temperature Drift		-2		+2	%	V <sub>in</sub> = 120Vac, V <sub>out</sub> = 36V <sub>dc</sub> , Run after 3hours
Aux. Output Voltage	V <sub>aux</sub>		12		V <sub>dc</sub>	
Aux. Output Current	I <sub>aux</sub>		100	150	mA	
Nominal Power	P <sub>o</sub>			78	W	
Turn-on Delay Time	T <sub>d</sub>			1	s	V <sub>in</sub> = 120Vac, 100% load

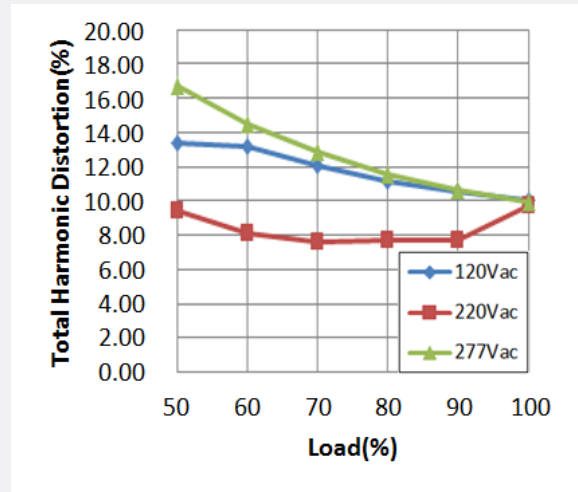
Article	Symbol	Specification			Unit	Note
		Min.	Typ.	Max.		
<b>DIMMING SPECIFICATIONS</b>						
Dimming Rangel		0		100	%	See 4)Dimming Specification section
Dim. Off			0.93			± 0.05Vdc
Dim. Min			1		Vdc	10%Io
Dim. On			1.35			± 0.1Vdc
Dim. Max		8		10		100%Io
I <sub>SOURCE</sub>		0		0.5	mA	
<b>ENVIRONMENTAL SPECIFICATIONS</b>						
Ambient Temperature	t <sub>a</sub>	-40		70		
Case Temperature	t <sub>c</sub>			90	°C	
Storage Temperature	t <sub>s</sub>	-40		80		
Ambient Humidity		20		95	%	Not condensing
Storage Humidity		10		95	%	Not condensing
Lightning Surge	L / N	±4			kV	IEC/EN 61000-4-5
	L-N / F.G	±6				
IP Rating			67		-	
Expected Lifetime (e-cap)		50,000			h	At t <sub>c</sub> < 75°C
MTBF			300,000			At t <sub>a</sub> = 25°C
Dimensions	L x W x H		173 x 67.5 x 40		mm	
Net Weight			785		g	

## 2. Typical Characteristics Graphs

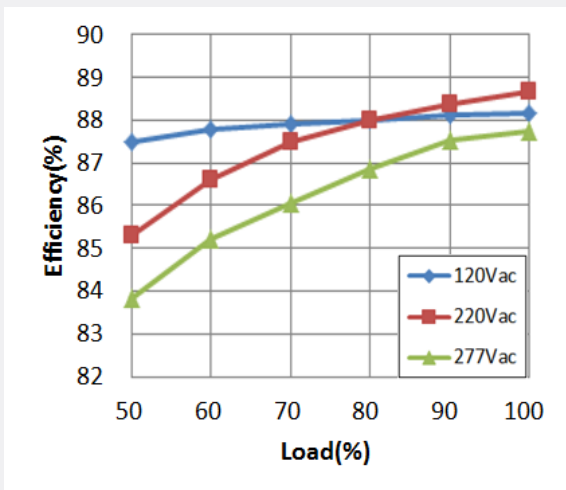
a) PF vs. Load



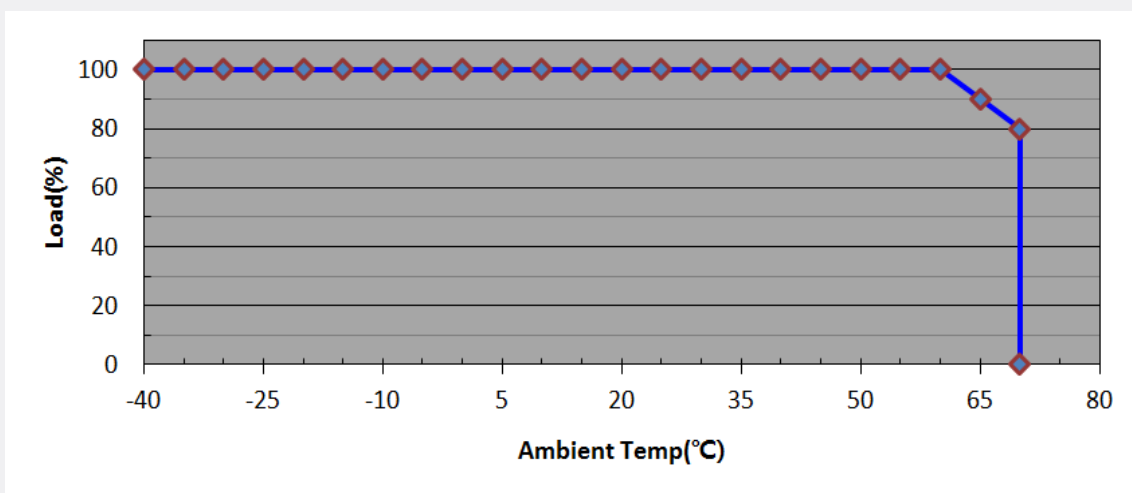
b) THD vs. Load



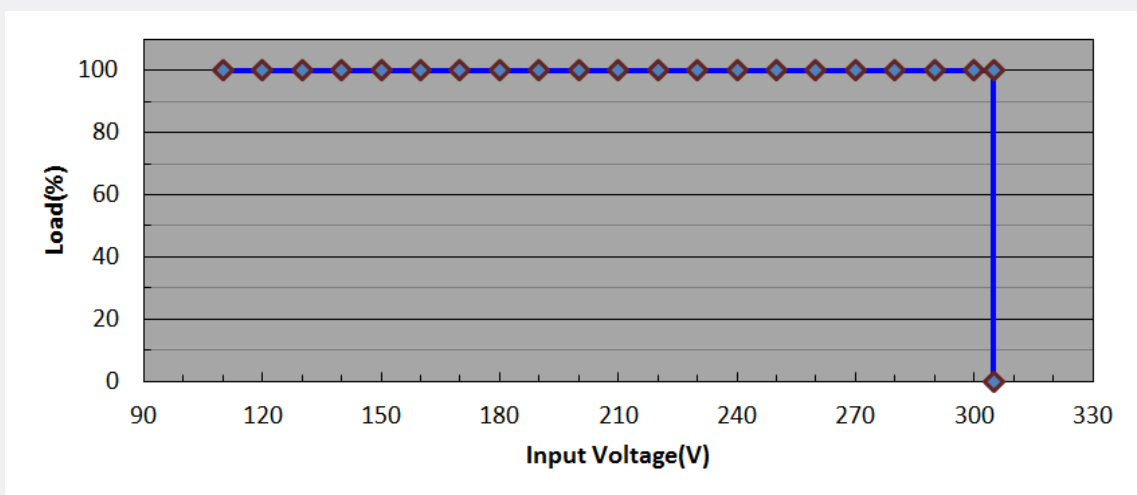
c) Efficiency vs. Load



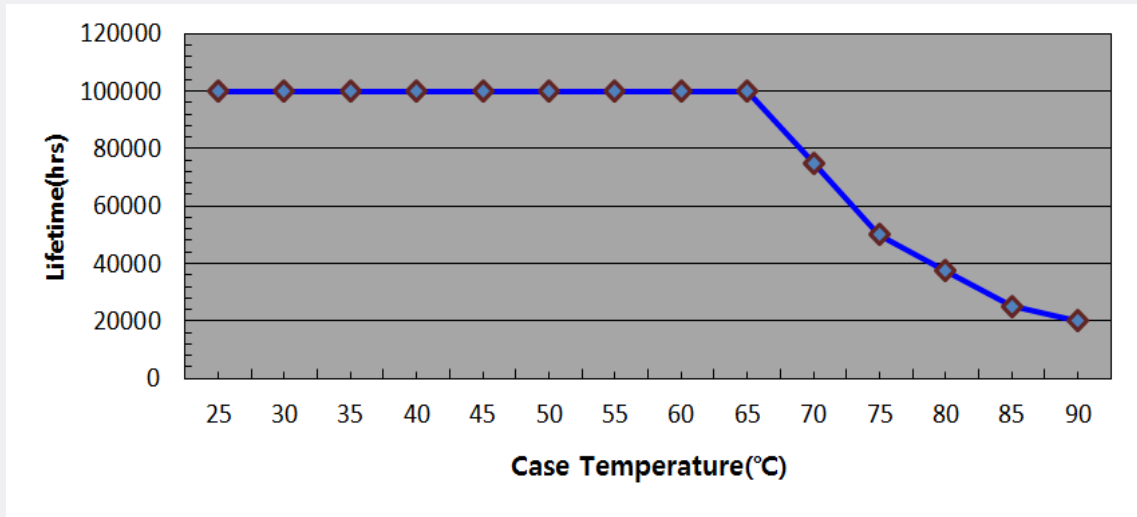
d) Ta vs. Load



e) Input Voltage vs. Load



f) Lifetime vs. tc



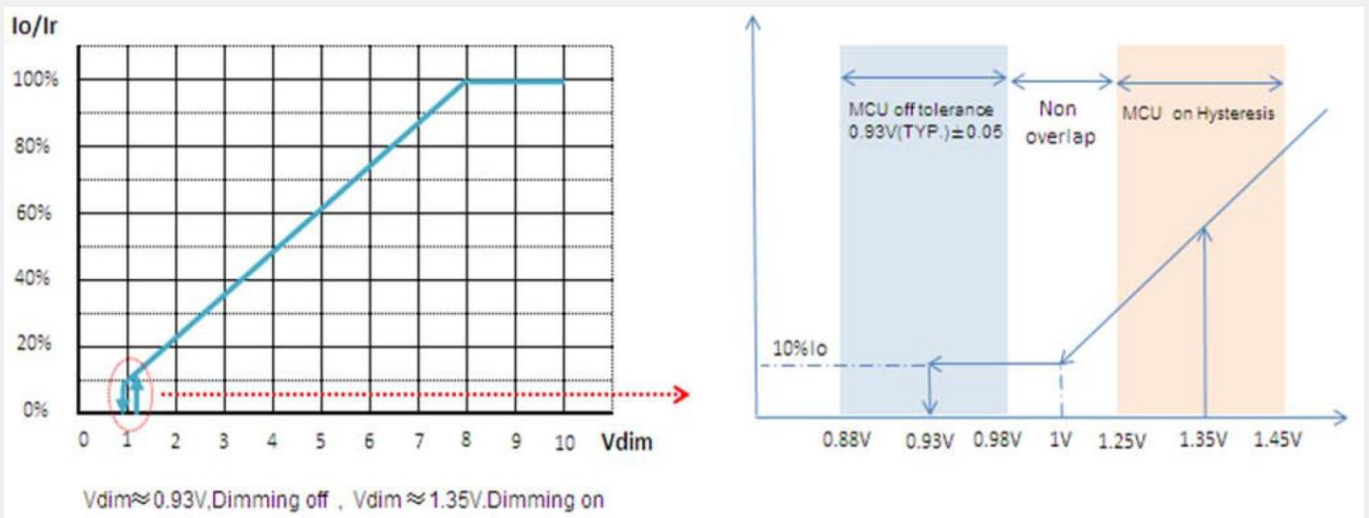
### 3. Protection

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 under 48Vdc	(1) AC turn on then output open (2) Output open then AC turn on
Output Temperature Protection	Current Reduction to 50%Io	Vin = Rated Voltage, tc point : 110°C, 100% load

### 4. Dimming Specification

The unit has Analog Dimming (AD) function, using 0-10 Vdc.

The typical dimming curve is shown below.



## 5. Reliability& Standards

### a) Safety and EMC

International Standard	Certification
UL Safety Standards (Class 2 Output)	UL 8750
	CAN/CSA-C22.2 No. 250.13-12 CAN/CSA-C22.2 No.107.1-01
Electro Magnetic Compatibility	FCC Part 15 Class B
IEC/EN Safety Standards for LED Lighting	IEC/EN 61347-1 IEC/EN 61347-2-13
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 $\pm 8\text{kV}$ , Air $\pm 15\text{kV}$	IEC/EN 61000-4-2
Radio-frequency Electromagnetic Fields	IEC/EN 61000-4-3
Electrical Fast Transients (EFT)	IEC/EN 61000-4-4
Surge: Differential mode $\pm 4\text{kV}$ , Common mode $\pm 6\text{kV}$	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	IEC/EN 61000-4-11





## b) Wiring

## c)

## Input harness

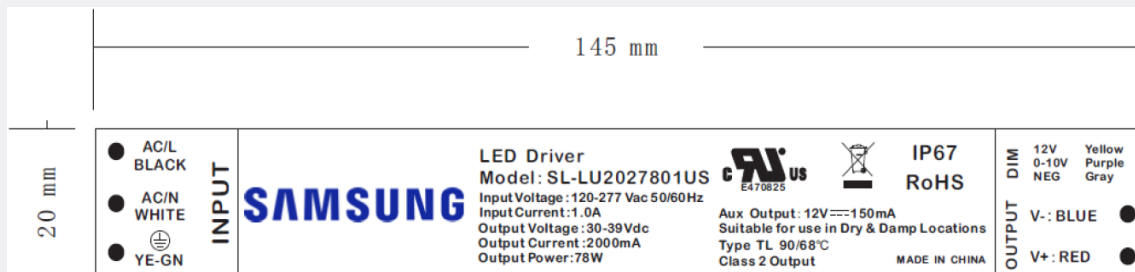
Wire	Symbol	Color	Description	Cable
1	Live	Black	AC Input	SJTW PVC, 18AWG
2	Neutral	White		
3	F.G	Yellow-Green	Protective Ground	

## Output harness

Wire	Symbol	Color	Description	Cable
1	V+	Red	Positive(Anode) LED Output(LED+)	SJTW PVC, 18AWG
2	V-	Blue	Negative(Cathode) LED Output(LED-)	
3	DIM+	Purple	External 0-10V Dimming Input	
4	12V	Yellow	External 12V Power Supply Output	UL 2517, 22AWG
5	DIM-	Gray	Dimming Signal Ground	

## 7. Driver Label

## SL-LU2027801US



## SL-LU2027802US



## 8. Packing Structure

Packing material	Driver Quantity	Dimension (mm)		
		Length	Width	Height
Outer Box	10	340	200	265
Pallet	320	850	820	1185

## 9. 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 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)
- 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.

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