

## Features

- High Efficiency (Up to 88%)
- Active Power Factor Correction (Typical 0.95)
- Constant Voltage Output
- IP67 and UL Dry / Damp / Wet location
- All-Round Protection: OVP, SCP, OCP, OTP
- Class 2 & SELV Output



## Description

The EUV-052SxxxST series is a 52W, constant-voltage IP67 LED driver that operates from 90~305 Vac input with excellent power factor. It is created for many lighting applications including architectural, decorative, tunnel and street. The high efficiency of these drivers and metal case enable them to run cooler, significantly improving reliability and extending product life. To ensure trouble-free operation, protection is provided against input surge, output over voltage, short circuit, over current, and over temperature.

## Models

Output Voltage	Input Voltage Range(1)	Output Current Range	Max. Output Power	Typical Efficiency (2)	Typical Power Factor		Model Number
					120Vac	220Vac	
24 Vdc	90 ~ 305 Vac	0 ~ 2170 mA	52 W	86.0%	0.96	0.95	EUV-052S024ST <sup>(3)</sup>
36 Vdc	90 ~ 305 Vac	0 ~ 1450 mA	52 W	86.0%	0.96	0.95	EUV-052S036ST <sup>(4)</sup>
48 Vdc	90 ~ 305 Vac	0 ~ 1080 mA	52 W	88.0%	0.96	0.95	EUV-052S048ST <sup>(5)</sup>

**Notes:** (1) UL, FCC certified input voltage range: 100-277Vac; other certified input voltage range except UL & FCC: 100-240Vac.

(2) Measured at 100% load and 220 Vac input.

(3) Class 2 output (USR & CNR both) for wet location.

(4) Class 2 output (USR); Class 2 output (CNR only) for wet location.

(5) Class 2 output (USR), Non-Class 2 output (CNR).

## Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	90 V	-	305 V	
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.75 MIU	UL8750; 277Vac/ 60Hz
	-	-	0.75 mA	IEC60598-1; 240Vac/ 60Hz
Input AC Current	-	-	0.8 A	Measured at 100% load and 100 Vac input.
	-	-	0.4 A	Measured at 100% load and 220 Vac input.
Inrush Current	-	-	60 A	At 220Vac input 25°C Cold Start. Duration=210 μs, 10%Ipk-10%Ipk.
Inrush Current(I <sup>2</sup> t)	-	-	0.2 A <sup>2</sup> s	

## Input Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Power Factor	0.90	-	-	At 100-277Vac, 50-60Hz, 75%-100% Load (39-52W)
THD	-	-	20%	

## Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Voltage Tolerance	-5%Vo		5%Vo	
Output Voltage Ripple(pk-pk) Vo = 24 V Vo = 36 V Vo = 48 V	- - -	- - -	3 V 4 V 4 V	Load conditions, Measured by 20 MHz bandwidth oscilloscope and the output paralleled a 0.1 uF ceramic capacitor and a 10 uF electrolytic capacitor.
No Load Output Voltage Vo = 24 V Vo = 36 V Vo = 48 V	- - -	- - -	28V 40V 52V	
Output Voltage Overshoot/ Undershoot	-	-	10%Vo	At 100% load condition.
Line Regulation	-	-	±2%	At 100% load condition.
Load Regulation	-	-	±3%	
Turn-on Delay Time	-	0.6 s	1.0 s	Measured at 120Vac input, 75%-100% load
	-	0.3 s	0.5 s	Measured at 220Vac input, 75%-100% load
Temperature Coefficient of Vo	-	0.2%/°C	-	Case temperature = 0°C ~Tc max

## General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 120 Vac input: Vo = 24 V Vo = 36 V Vo = 48 V	82.0% 83.0% 84.0%	84.0% 85.0% 86.0%	- - -	Measured at 100% load, 120 Vac input, 25°C ambient temperature, after the unit is thermally stabilized. It will be about 2.5% lower, if measured immediately after startup.
Efficiency at 220 Vac input: Vo = 24 V Vo = 36 V Vo = 48 V	84.0% 84.0% 86.0%	86.0% 86.0% 88.0%	- - -	Measured at 100% load, 120 Vac input, 25°C ambient temperature, after the unit is thermally stabilized. It will be about 2.5% lower, if measured immediately after startup.
Efficiency at 277 Vac input: Vo = 24 V Vo = 36 V Vo = 48 V	83.5% 84.0% 86.0%	85.5% 86.0% 88.0%	- - -	Measured at 100% load, 120 Vac input, 25°C ambient temperature, after the unit is thermally stabilized. It will be about 2.5% lower, if measured immediately after startup.
No Load Power Dissipation	-	-	6 W	

## General Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
MTBF	321,000 hours	-	-	Measured at 120Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime	-	93,300 Hours	-	Measured at 120Vac input, 80%Load, Case temperature=60°C @ Tc point. See life time vs. Tc curve for the details
Operating Case Temperature for Safety Tc_s	-40 °C	-	+90 °C	
Operating Case Temperature for Warranty Tc_w	-40 °C	-	+70 °C	Humidity: 10% RH to 95% RH
Storage Temperature	-40 °C	-	+85 °C	Humidity: 5% RH to 95% RH
Dimensions Inches (L × W × H) Millimeters (L × W × H)	6.77 × 1.77 × 1.38 172 × 45.0 × 35.0			With mounting ear 7.60 × 1.77 × 1.38 193 × 45.0 × 35.0
Net Weight	-	520 g	-	

## Safety & EMC Compliance

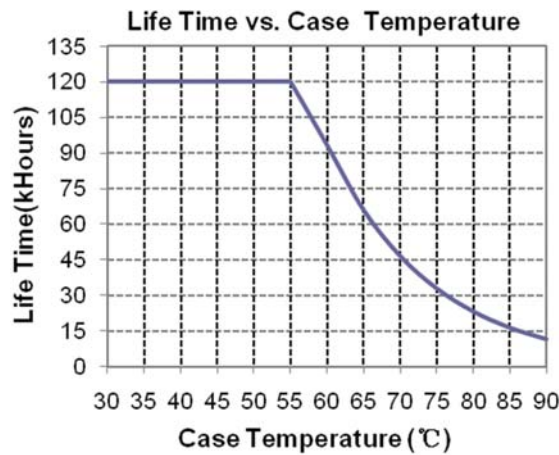
Safety Category	Standard
UL/CUL	UL8750, UL1012, UL1310 Class 2, CSA-C22.2 No. 107.1, CSA C22.2 NO. 223-M91 Class 2
CE	EN 61347-1, EN 61347-2-13
KS	KS C 7655
EMI Standards	Notes
EN 55015 <sup>(1)</sup>	Conducted emission Test & Radiated emission Test
EN 61000-3-2	Harmonic current emissions
EN 61000-3-3	Voltage fluctuations & flicker
FCC Part 15 <sup>(1)</sup>	ANSI C63.4 Class B
	This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: [1] this device may not cause harmful interference, and [2] this device must accept any interference received, including interference that may cause undesired operation.
EMS Standards	Notes
EN 61000-4-2	Electrostatic Discharge (ESD): 8 kV air discharge, 4 kV contact discharge
EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test-RS
EN 61000-4-4	Electrical Fast Transient / Burst-EFT
EN 61000-4-5	Surge Immunity Test: AC Power Line: Differential Mode 4 kV, Common Mode 6 kV

## Safety & EMC Compliance (Continued)

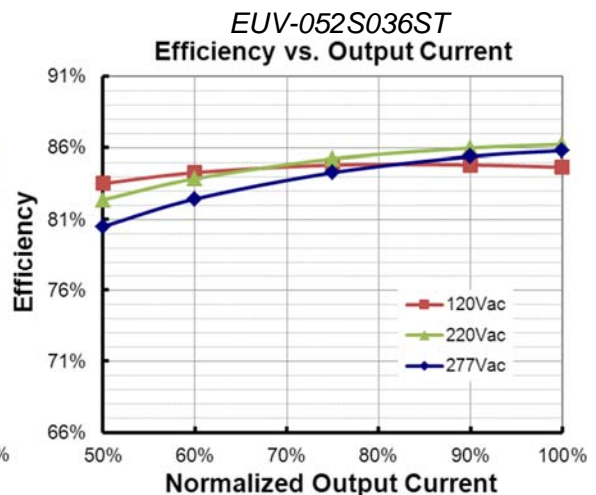
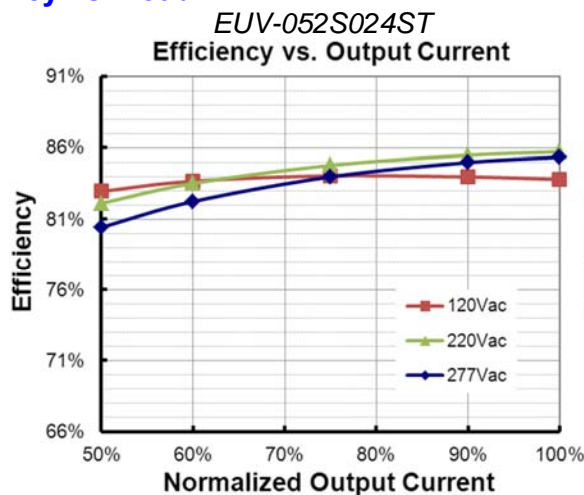
EMS Standards	Notes
EN 61000-4-6	Conducted Radio Frequency Disturbances Test-CS
EN 61000-4-8	Power Frequency Magnetic Field Test
EN 61000-4-11	Voltage Dips
EN 61547	Electromagnetic Immunity Requirements Applies To Lighting Equipment

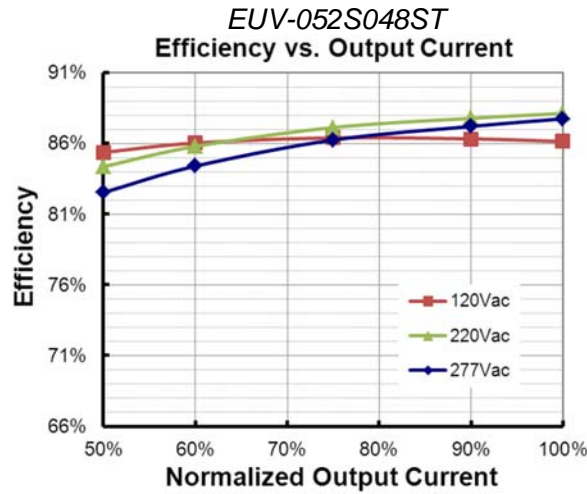
**Note:** (1) This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

## Lifetime vs. Case Temperature

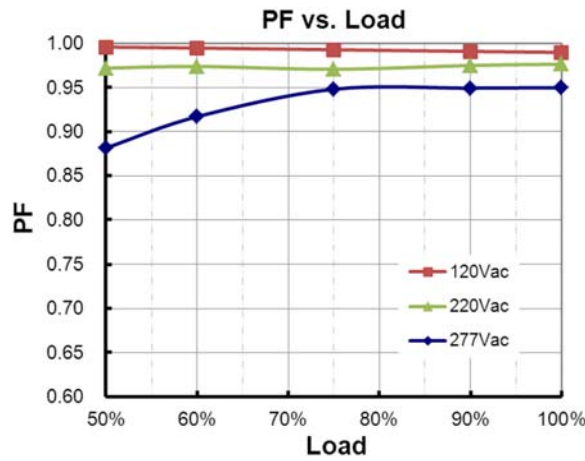


## Efficiency vs. Load





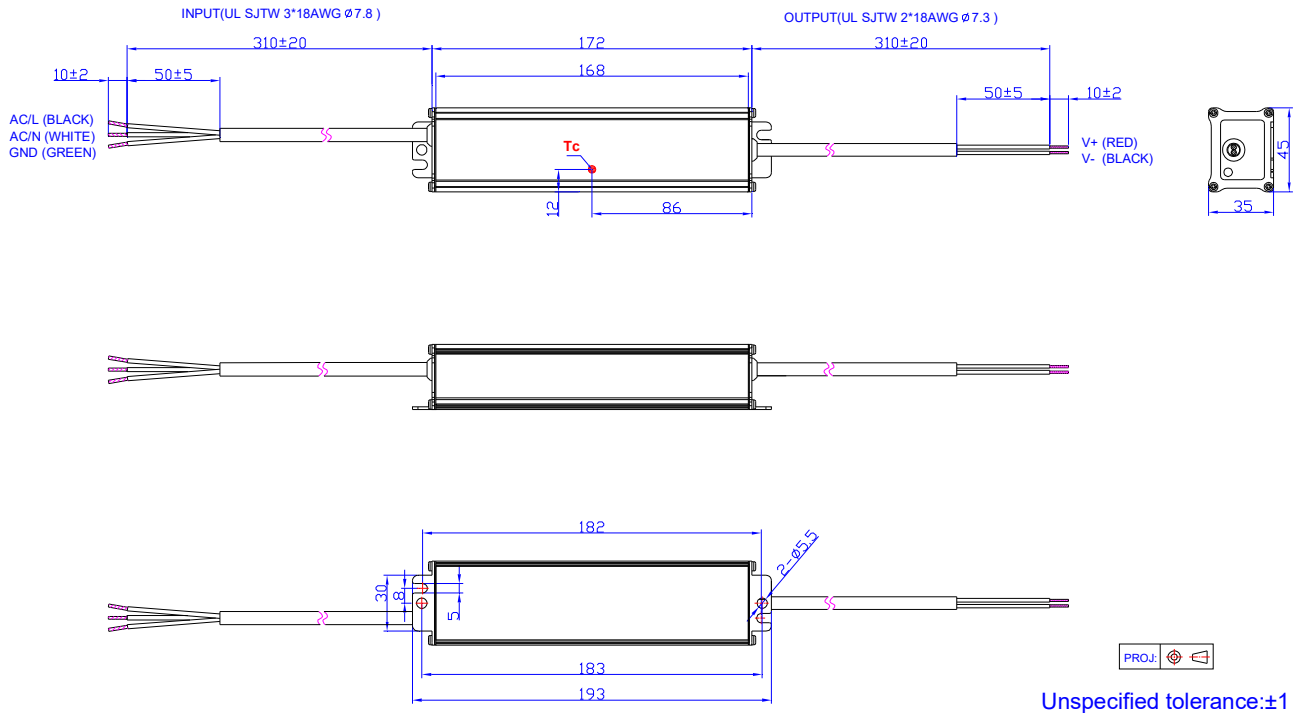
## Power Factor



## Protection Functions

Parameter	Min.	Typ.	Max.	Notes
Over Current Protection	1.1 I <sub>o</sub>	1.40 I <sub>o</sub>	1.70 I <sub>o</sub>	Hiccup mode. The power supply shall be self-recovery when the fault condition is removed.
Over Temperature Protection	Auto Recovery. Returning to normal after over temperature is removed.			
Short Circuit Protection	No damage shall occur when any output operating in a short circuit condition. The power supply shall be self-recovery when the fault condition is removed.			
Over Voltage Protection	Limits output voltage at no load and in case the normal voltage limit fails.			

## Mechanical Outline



## RoHS Compliance

Our products comply with reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU, calling for the elimination of lead and other hazardous substances from electronic products.

## Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2012-4-24	A	Datasheets Release	/	/
2012-05-25	B	OTP	/	Added
2012-06-06	C	Life time vs. Tc Curve	/	Added
		Notes of life time	/	Updated
2012-7-2	D	Description of OTP	/	Updated
2012-7-17	E	Max Case Temperature	/	Updated
		Mechanical Outline— wire length 320±20mm	/	Corrected
2012-7-30	F	Min Operating Temperature	-35°C	-40°C
2012-8-16	G	Derating Curve	/	Updated
		Inrush Current(I <sup>2</sup> t)	/	Added
		Min PF	/	Added
		THD Max	/	Added
		Temperature co-efficient	/	Added
2012-11-27	H	Life time	Min 50,000hrs	Typical 93,300hrs
		Life time Curve	/	Updated
		Mechanical Outline	/	Updated
2017-04-05	I	Efficiency at 277 Vac input	/	Added
		Warranty Tc_w	/	Added
		Environmental Specifications	/	Deleted
		KS certificate Regulation	/	Added
		Note of EMI Standard	/	Added
		Derating Curve	/	Deleted
		Power Factor Curve	/	Updated
		Dimensions (L × W × H)	172 × 42.4 × 34.0	172 × 45.0 × 35.0
		Net Weight	480 g	520 g
		Protection Functions - Over Temperature Protection	/	Updated
		Mechanical Outline	/	Updated
2021-09-29	J	Product photograph	/	Updated
		Description	/	Updated
		Models	Typical Efficiency	Updated
		General Specifications	Efficiency at 120 Vac input	Updated
		General Specifications	Efficiency at 220 Vac input	Updated

## Revision History (Continued)

Change Date	Rev.	Description of Change		
		Item	From	To
2021-09-29	J	General Specifications	Efficiency at 277 Vac input	Updated