

## Features

- Ultra High Efficiency (Up to 90%)
- High Power Factor (0.99 Typical)
- Constant Voltage Output
- Lightning Protection
- All-Round Protection: OVP, OCP, SCP, OTP
- Waterproof (IP67) and UL Dry / Damp / Wet Location
- SELV Output
- 5 Years Warranty



## Description

The EUV-096SxxxST series is a 96W, 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 and signage. The high efficiency of the driver and compact metal case enables them to run cooler, significantly improving reliability and extending product life. To ensure trouble-free operation, protection is provided against input surge, over current, output over voltage, short circuit, and over temperature.

## Models

Output Voltage	Input Voltage Range	Output Current Range	Max. Output Power	Typical Efficiency (1)	Power Factor		Model Number
					120Vac	220Vac	
24 Vdc	90 ~ 305 Vac	0~4.00 A	96 W	87%	0.99	0.96	EUV-096S024ST <sup>(2)(4)(6)</sup>
36 Vdc	90 ~ 305 Vac	0~2.66 A	96 W	88%	0.99	0.96	EUV-096S036ST <sup>(2)(5)(6)</sup>
48 Vdc	90 ~ 305 Vac	0~2.00 A	96 W	88%	0.99	0.96	EUV-096S048ST <sup>(3)(6)</sup>
54 Vdc	90 ~ 305 Vac	0~1.77 A	96 W	90%	0.99	0.96	EUV-096S054ST <sup>(3)(6)</sup>

**Note:** (1) Measured at 25°C, 100% load and 220 Vac input.

(2) Class 2 output (USR & CNR) for dry and damp location.

(3) Class 2 output (USR), Non-Class 2 output (CNR) for dry and damp location.

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

(5) Class 2 output (CNR only) only for wet location.

(6) SELV Output

## Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	90 V	-	305 V	
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	1 mA	At 277Vac 50Hz input
Input AC Current	-	-	1.2 A	Measured at 100% load and 100 Vac input.
	-	-	0.6 A	Measured at 100% load and 220 Vac input.
Inrush Current	-	-	69 A	At 220Vac input, 25°C Cold start, Duration= 2 mS, 10%Ipk-10%Ipk
Inrush Current(I <sup>2</sup> t)	-	-	2.8 A <sup>2</sup> s	

Specifications are subject to changes without notice.

## Input Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
PF	0.90	-	-	At 100Vac-277Vac, 50-60Hz, 75%-100%load
THD	-	-	20%	

## Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Voltage Tolerance	-5%	-	5%	
Ripple and Noise (pk-pk)	-	-	3% V <sub>O</sub>	Measured by 20 MHz bandwidth oscilloscope and the output paralleled a 0.1 uF ceramic capacitor and a 10 uF electrolytic capacitor.
Line Regulation	-	-	± 1%	
Load Regulation	-	-	± 2%	
Turn-on Delay Time	-	1.0 s	2.0 s	Measured at 120Vac input, 75%-100%load
	-	1.0s	2.0 s	Measured at 220Vac input, 75%-100%load
Output Overshoot / Undershoot	-	-	10%	When power on or off.
Load Dynamic Response	Output Deviation	-	5% V <sub>O</sub>	R/S: 1 A/uS Load: 25% ~ 75% full load.
	Settling Time	-	10 mS	
Temperature coefficient	-	0.03%/°C	-	Case temperature = 0°C ~Tc max

**Note:** All specifications are typical at 25 °C unless otherwise stated.

## Protection Functions

Parameter	Min.	Typ.	Max.	Notes
Over Voltage Protection V <sub>O</sub> = 24 V V <sub>O</sub> = 36 V V <sub>O</sub> = 48 V V <sub>O</sub> = 54 V	-	30 V 45 V 55 V 65 V	35 V 50 V 60 V 75 V	
Over Current Protection	100% I <sub>O</sub>		110% I <sub>O</sub>	Hiccup mode. The power supply shall be self-recovery when the fault condition is removed.
Over Temperature Protection-Tc	-	110 °C	-	Maximum temperature of the case. The power supply shall be self-recovery when the fault condition 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.			

## General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency V <sub>O</sub> = 24 V V <sub>O</sub> = 36 V V <sub>O</sub> = 48 V V <sub>O</sub> = 54 V	83% 84% 84% 85%	85% 86% 86% 87%	- - - -	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 V <sub>O</sub> = 24 V V <sub>O</sub> = 36 V V <sub>O</sub> = 48 V V <sub>O</sub> = 54 V	85% 86% 86% 88%	87% 88% 88% 90%	- - - -	Measured at 100% load, 220 Vac input, 25°C ambient temperature, after the unit is thermally stabilized. It will be about 2.5% lower, if measured immediately after startup.
MTBF	-	202,000 Hours	-	Measured at 120Vac input, 80% Load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime	-	56,600 Hours	-	Measured at 120Vac input, 80%load; Case temperature=60°C @ Tc point. See lifetime vs. Tc curve for the details
Operating Case Temperature for Safety Tc_s	-40°C		89°C	
Operating Case Temperature for Warranty Tc_w	-40°C		+70 °C	Case temperature for 5 years warranty
Storage Temperature	-40°C	-	+85 °C	Humidity: 5% RH to 100% RH
Dimensions Inches (L × W × H) Millimeters (L × W × H)	6.85 × 2.66 × 1.44 174 × 67.5 × 36.5			With mounting ear 7.91 × 2.66 × 1.44 201 × 67.5 × 36.5
Net Weight	-	925 g	-	

**Note:** All specifications are typical at 25 °C unless otherwise stated.

## Safety & EMC Compliance

Safety Category	Standard
UL/CUL	UL8750, UL 1310, CAN/CSA-C22.2 No. 250.13, CAN/CSA-C22.2 No. 223-M91
CE	EN 61347-1, EN61347-2-13
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 nterference received, including interference that may cause undesired Operation.

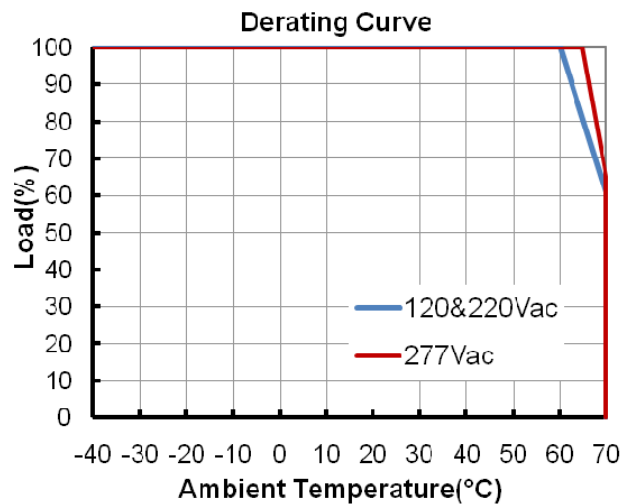
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## Safety & EMC Compliance (Continued)

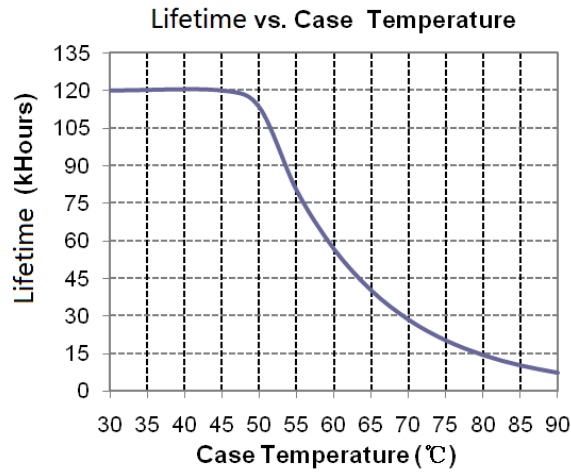
EMS Standards	Notes
EN 61000-4-2	Electrostatic Discharge (ESD): 15 kV air discharge, 8 kV contact discharge
EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test-RS
EN 61000-4-4	Electrical Fast Transient / Burst-EFT
EN 61000-4-5	Surge Immunity Test: AC Power Line: line to line 4 kV, line to earth 6 kV
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:** 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.

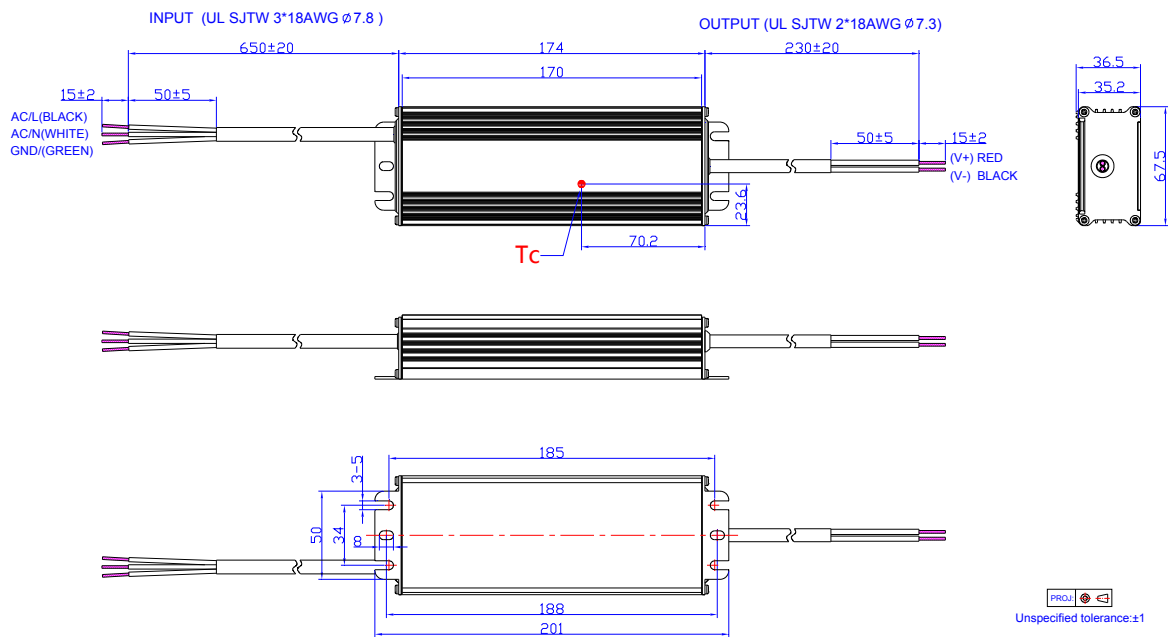
## Derating Curve



## Lifetime vs. Case Temperature Curve



## Mechanical Outline



## RoHS Compliance

Our products comply with the European Directive 2002/95/EC, calling for the elimination of lead and other hazardous substances from electronic products.

## Revision History

Change Date	Rev.	Description of Change				
		Item	From		To	
2010-12-21	A	Change PF at 220Vac	0.95		0.96	
		Change the notes for models	/		/	
		Change Ripple and Noise (pk-pk)	2% Vo		3% Vo	
		Delete Derating Curve	/		/	
		Add Max. Case Temperature	/		tc: 89 °C	
		Update safety standards	/		/	
		Add FCC Part15 Class B	/		FCC Part 15 Class B, ANSI C63.4: 2009.	
		Update mechanical Outline	/		/	
2011-07-08	B	Models-TE	88%,89%,89%,90%		87%,88%,88%,90%	
		Input Specifications-Input AC Current	1.2A		1.3A	
		Inrush Current	50A		69A	
		Output Specifications-Turn-on Delay Time	0.8S	1S	1S	3S
			0.8S	1S	0.8S	2S
		Protection Functions	/		/	
		General Specifications-Typ.	86%	86%		
			87%	87%		
			87%	87%		
			88%	88%		
			88%	87%		
89%	88%					
89%	88%					
90%	90%					
General Specifications-Notes	1%		2-3%			
2012-01-18	C	Input AC Current	1.3 A		1.2 A	
2012-05-17	D	All Models-Min Efficiency	/		1% Lower	
2012-06-08	E	Derating Curve	/		Updated	
		Life time vs. Tc Curve	/		Added	
2012-7-17	F	Max Case Temperature	/		Updated	
		EN61000-4-5	line to line 2 kV, line to earth 4 kV		line to line 4 kV, line to earth 6 kV	
2012-8-6	G	SELV Output	/		Added	
		Duration of Inrush Current	140 μs		2 mS	
		Operating Temperature/Derating Curve	/		Updated	
2012-10-16	H	MTBF & Life time Typical	/		Added	
		Life time Curve	/		Updated	
		Min PF, Max THD, Temperature Coefficient	/		Added	
2013-1-10	I	Turn-on delay time	1s	3s	1s	2s
			0.8s	2s	1s	2s

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## Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2018-10-26	J	Features	/	Updated
		Description	/	Updated
		Models	/	Updated
		Input Specifications	PF/THD	Updated
		Output Specifications	Turn-on Delay Time	Updated
		Temperature coefficient	Max 0.03%/°C	Typ 0.03%/°C
		General Specifications	Operating Case Temperature for Safety Tc_s	Updated
		General Specifications	Operating Case Temperature for Warranty Tc_w	Updated
		General Specifications	Storage Temperature	Updated
		Environmental Specifications	/	Deleted
		Dimensions	With mounting ear	Added
		Net Weight	850g	925g
		Safety & EMC Compliance	/	Updated
		Max. Case Temperature	/	Deleted
		Lifetime vs. Case Temperature Curve	/	Updated
		Mechanical Outline	/	Updated

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