

## Features

- High Efficiency (Up to 90%)
- Active Power Factor Correction (Up to 0.99)
- Constant Current Output
- Input Surge Protection: 4kV line-line, 6kV line-earth
- All-Round Protection: OVP, SCP, OTP
- Waterproof (IP67) and UL Dry / Damp / Wet Location
- Class 2 & SELV Output
- TYPE HL, for use in a Class I, Division 2 hazardous (Classified) location



## Description

The EUC-060SxxxST series is a 60W, constant-current LED driver that operates from 90-305 Vac input with excellent power factor. It is created for low bay, tunnel and street lights. The high efficiency of these drivers 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, output over voltage, short circuit, and over temperature.

## Models

Output Current	Input Voltage Range	Output Voltage Range	Max. Output Power	Typical Efficiency (2)	Power Factor		Model Number
					120Vac	220Vac	
350 mA <sup>(1)</sup>	90 ~ 305 Vac	85~170 Vdc	60 W	90%	0.99	0.95	EUC-060S035ST <sup>(3)</sup>
450 mA <sup>(1)</sup>	90 ~ 305 Vac	67~134 Vdc	60 W	90%	0.99	0.95	EUC-060S045ST <sup>(3)</sup>
700 mA <sup>(1)</sup>	90 ~ 305 Vac	43 ~86 Vdc	60 W	90%	0.99	0.95	EUC-060S070ST <sup>(3)</sup>
1050 mA <sup>(1)</sup>	90 ~ 305 Vac	29 ~58 Vdc	60 W	89%	0.99	0.95	EUC-060S105ST <sup>(3)</sup>
1400 mA <sup>(1)</sup>	90 ~ 305 Vac	21 ~43 Vdc	60 W	89%	0.99	0.95	EUC-060S140ST <sup>(4)</sup>
1700 mA <sup>(1)</sup>	90 ~ 305 Vac	18 ~36 Vdc	60 W	89%	0.99	0.95	EUC-060S170ST <sup>(5)</sup>
2300 mA <sup>(1)</sup>	90 ~ 305 Vac	13 ~27 Vdc	60 W	88%	0.99	0.95	EUC-060S230ST <sup>(5)</sup>
3300 mA <sup>(1)</sup>	90 ~ 305 Vac	9 ~18 Vdc	60 W	88%	0.99	0.95	EUC-060S330ST <sup>(5)</sup>
5000 mA	90 ~ 305 Vac	6 ~12 Vdc	60 W	87%	0.99	0.95	EUC-060S500ST <sup>(5)</sup>

- Notes:** (1) The output current is adjustable at factory from 50% to 100%.  
 (2) Measured at full load and 220 Vac input.  
 (3) Non-Class 2 output (USR & CNR).  
 (4) Class 2 output (USR), Non-Class 2 output (CNR).  
 (5) Class 2 output (USR & CNR).

## Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	90 V	-	305 V	
Input Frequency	47 Hz	-	63 Hz	

## Input Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Leakage Current	-	-	1 mA	At 277Vac 60Hz input
Input AC Current	-	-	0.8 A	Measured at full load and 100 Vac input.
	-	-	0.36 A	Measured at full load and 220 Vac input.
Inrush Current	-	-	60 A	At 230Vac input 25°C Cold Start
PF	0.9	-	-	At 100-277Vac, 75%-100% Load
THD	-	-	20%	

## Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%	-	5%	
Ripple and Noise (pk-pk)	-	-	5% 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	-	-	3%	
Turn-on Delay Time	-	0.8 s	1.2 s	Measured at 120Vac input.
	-	0.4 s	0.6 s	Measured at 220Vac input.

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

## Protection Functions

Parameter	Min.	Typ.	Max.	Notes
Over Voltage Protection <i>I</i> <sub>O</sub> = 350 mA <i>I</i> <sub>O</sub> = 450 mA <i>I</i> <sub>O</sub> = 700 mA <i>I</i> <sub>O</sub> = 1050 mA <i>I</i> <sub>O</sub> = 1400 mA <i>I</i> <sub>O</sub> = 1700 mA <i>I</i> <sub>O</sub> = 2300 mA <i>I</i> <sub>O</sub> = 3300 mA <i>I</i> <sub>O</sub> = 5000 mA	- - - - - - - - -	195 V 145 V 92 V 65 V 50 V 42 V 31 V 22 V 15 V	215 V 160 V 102 V 70 V 55 V 45 V 38 V 25 V 17 V	Latch mode. The power supply shall return to normal operation only after the power is turn-on again.
Over Temperature Protection	-	110 °C	-	Latch mode. The power supply shall return to normal operation only after the power is turn-on again.
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 $I_o = 350 \text{ mA}$ $I_o = 450 \text{ mA}$ $I_o = 700 \text{ mA}$ $I_o = 1050 \text{ mA}$ $I_o = 1400 \text{ mA}$ $I_o = 1700 \text{ mA}$ $I_o = 2300 \text{ mA}$ $I_o = 3300 \text{ mA}$ $I_o = 5000 \text{ mA}$	86% 86% 86% 85% 85% 85% 84% 84% 83%	88% 88% 88% 87% 87% 87% 86% 86% 85%	- - - - - - - - -	Measured at full load, 120Vac input, 25°C ambient temperature, after the unit is thermally stabilized.  It will be lower about 2%, if measured immediately after startup.
Efficiency $I_o = 350 \text{ mA}$ $I_o = 450 \text{ mA}$ $I_o = 700 \text{ mA}$ $I_o = 1050 \text{ mA}$ $I_o = 1400 \text{ mA}$ $I_o = 1700 \text{ mA}$ $I_o = 2300 \text{ mA}$ $I_o = 3300 \text{ mA}$ $I_o = 5000 \text{ mA}$	88% 88% 88% 87% 87% 87% 86% 86% 85%	90% 90% 90% 89% 89% 89% 88% 88% 87%	- - - - - - - - -	Measured at full load, 220Vac input, 25°C ambient temperature, after the unit is thermally stabilized.  It will be lower about 2%, if measured immediately after startup.
MTBF	-	367,000 hours	-	Measured at 120Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime $I_o = 2300 \text{ mA}$ $I_o = 5000 \text{ mA}$		112,800 hours 66,500 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	-	-	88 °C	2300 mA; 3300 mA : 90°C
Dimensions Inches (L x W x H) Millimeters (L x W x H)		5.91 x 2.66 x 1.44 150 x 67.5 x 36.5		With mounting ear 6.97 x 2.66 x 1.44 177 x 67.5 x 36.5
Net Weight	-	750 g	-	

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

## Environmental Specifications

Parameter	Min.	Typ.	Max.	Notes
Operating Temperature	-35°C	-	+70 °C	Humidity: 10% RH to 100% RH See Derating Curve for more details
Storage Temperature	-40 °C	-	+85 °C	Humidity: 5% RH to 100% RH

## Safety & EMC Compliance

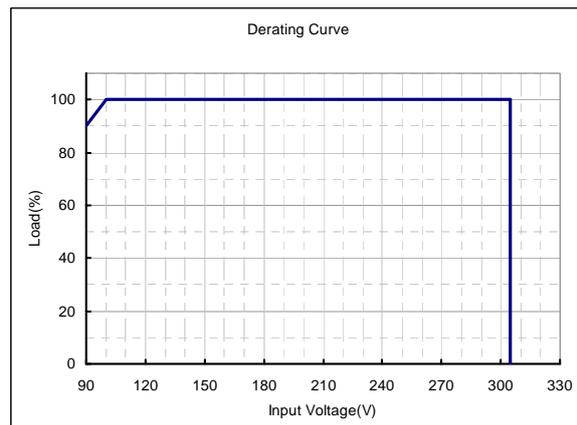
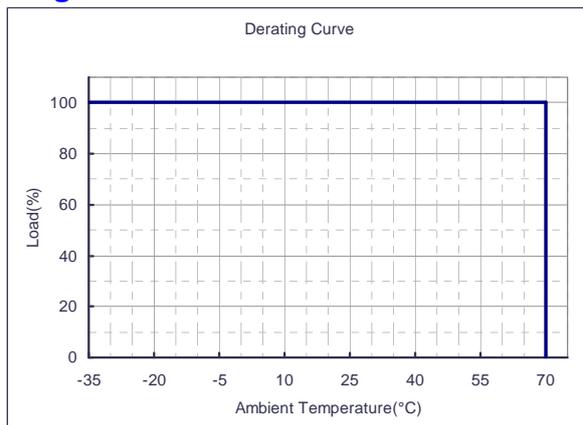
Safety Category	Standard
UL/CUL	UL8750, UL1310, UL1012, CAN/CSA-C22.2 No. 250.13, CAN/CSA-C22.2 No. 223-M91
CE	EN61347-1, EN61347-2-13
KS	KS C 7655

## Safety & EMC Compliance (Continued)

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: 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

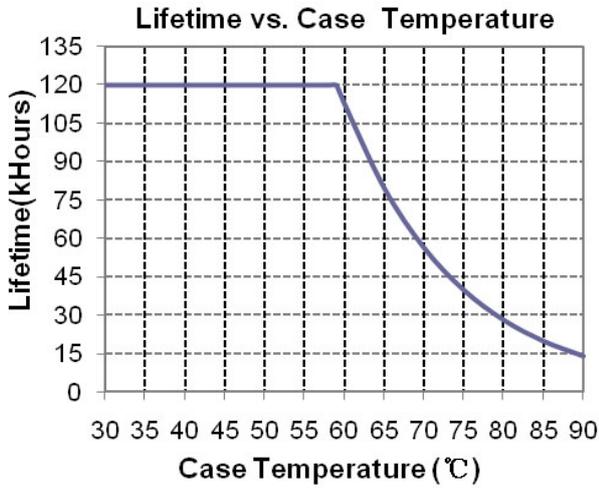
**Note:** (1) This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

## Derating Curve

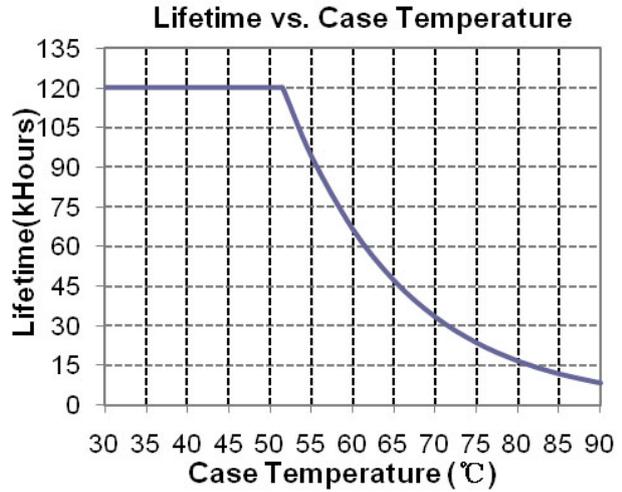


## Lifetime vs. Case Temperature Curve

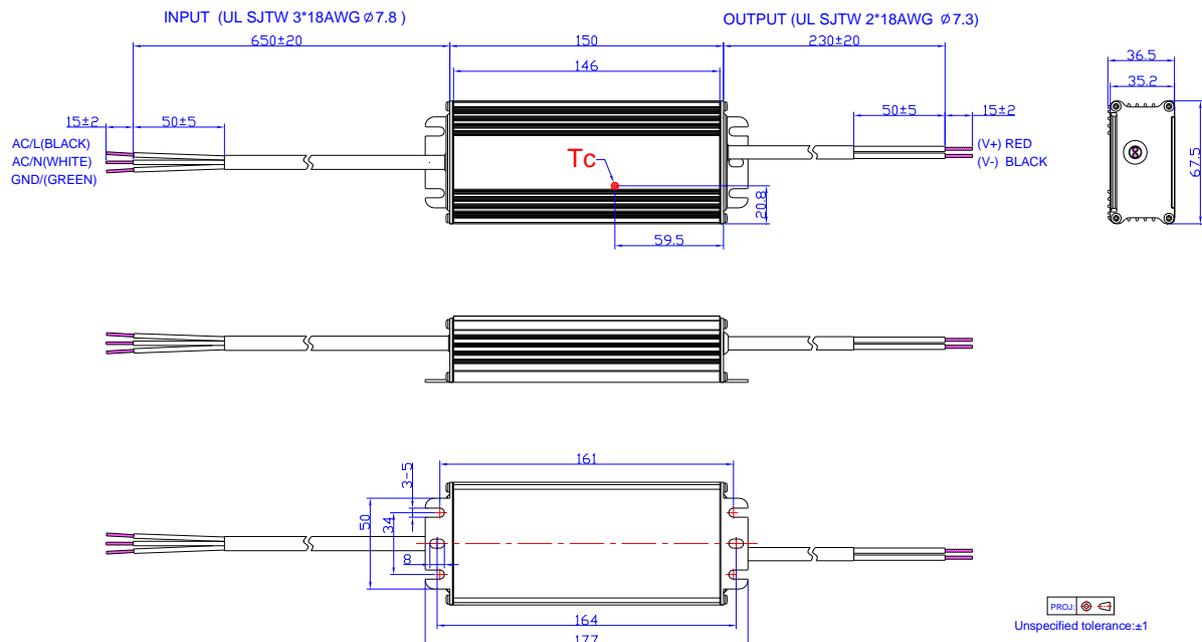
EUC-060S230ST



EUC-060S500ST



## 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
2009-10-15	A	1. Add notes of UL1310 Class 2 for all models. 2. Change the OVP Value; 3. Change the main value of efficiency; 4. Change the stripper length of all wires to 50mm.		
2009-11-10	B	Change notes of efficiency.		
2009-12-03	C	Add notes: the output current is adjustable at factory from 50% to 100%		
2010-03-03	D	Change Model Note: EUC-060S230ST (4) EUC-060S330ST (4)		(5) (5)
		Add Leakage Current in Input Specifications	/	/
		Add Derating Curve	/	/
		Modify the tin-plated wire length tolerance in Mechanical Outline	±0.5	±2
2010-05-31	E	Add star rank for recommended models	/	☆: Popular model.
		Standardize the tolerance in Mechanical Outline	/	/
2010-08-10	F	Delete Output Overshoot / Undershoot	Max. 10%	/
		Change Turn-on Delay Time 120Vac input	Typ. 0.5S Max. 0.8S	Typ. 0.8S Max. 1.2S
2011-01-14	G	Change popular models	/	/
2011-12-09	H	EUC-060S140ST, EUC-060S170ST	Non Class 2	Class 2
2012-06-10	I	Efficiency IO = 350 mA IO = 450 mA IO = 700 mA IO = 1050 mA IO = 1400 mA IO = 1700 mA IO = 2300 mA	/	1% Lower
		EN61000-4-5	line to line 2 kV, line to earth 4 kV	line to line 4 kV, line to earth 6 kV
		Life time curve	/	Added
2012-07-05	J	Inrush Current	50 A	60 A
2012-07-17	K	Max Case Temperature	/	Updated
2013-03-12	L	MTBF	/	Typical value updated
		Life time	/	Typical value updated
		Life time curve	/	Updated
		Mechanical Outline	/	Updated
2017-06-19	M	Format	/	Updated
		KS	/	Added

	Features	/	Updated
	Description	/	Updated
	Models	Notes	Added
	Input Specifications	PF	Added
	Input Specifications	THD	Added
	General Specifications	Case Temperature	Operating Case Temperature for Safety Tc_s
	General Specifications	With mounting ear	Added
	Safety & EMC Compliance	/	Updated
	Mechanical Outline	/	Updated