

Features

- High Efficiency (Up to 92.5 %)
- Constant Current Output
- 0-10V Dimming Control
- Input Surge Protection: 4kV line-line, 6kV line-earth
- All-Around Protection: OVP, SCP, OTP
- Waterproof (IP67) and UL Dry / Damp / Wet Location
DT models in Wet Locations must be Built-In
- SELV Output
- TYPE HL, for use in a Class I, Division 2 hazardous (Classified) location



Description

The *EUC-150SxxxDT(ST)* series is a 150W, constant-current LED driver that operates from 90-305 Vac input with excellent power factor. It is created for high bay, tunnel and roadway 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(1)	Output Voltage Range	Max. Output Power	Typical Efficiency (2)	Power Factor		Model Number (3)
					120Vac	220Vac	
350 mA	90 ~ 305 Vac	256~428Vdc	150 W	92.5%	0.99	0.95	EUC-150S035ST
350 mA	90 ~ 305 Vac	214~428Vdc	150 W	92.5%	0.99	0.95	EUC-150S035DT
450 mA	90 ~ 305 Vac	200~333Vdc	150 W	92.5%	0.99	0.95	EUC-150S045ST
450 mA	90 ~ 305 Vac	166~333Vdc	150 W	92.5%	0.99	0.95	EUC-150S045DT
700 mA	90 ~ 305 Vac	128~214Vdc	150 W	92.5%	0.99	0.95	EUC-150S070ST
700 mA	90 ~ 305 Vac	107~214Vdc	150 W	92.5%	0.99	0.95	EUC-150S070DT
1050 mA	90 ~ 305 Vac	85~142 Vdc	150 W	92.0%	0.99	0.95	EUC-150S105ST
1050 mA	90 ~ 305 Vac	71~142 Vdc	150 W	92.0%	0.99	0.95	EUC-150S105DT
1400 mA	90 ~ 305 Vac	64~107 Vdc	150 W	92.0%	0.99	0.95	EUC-150S140ST(4)
1400 mA	90 ~ 305 Vac	53~107 Vdc	150 W	92.0%	0.99	0.95	EUC-150S140DT(4)
1750 mA	90 ~ 305 Vac	51~85 Vdc	150 W	91.5%	0.99	0.95	EUC-150S175ST(4)
2100 mA	90 ~ 305 Vac	42~71 Vdc	150 W	91.5%	0.99	0.95	EUC-150S210ST(4)
2450 mA	90 ~ 305 Vac	36~61 Vdc	150 W	91.5%	0.99	0.95	EUC-150S245ST(4)
2800 mA	90 ~ 305 Vac	31~53 Vdc	150 W	91.5%	0.99	0.95	EUC-150S280ST(4)

Models (Continued)

Output Current	Input Voltage Range(1)	Output Voltage Range	Max. Output Power	Typical Efficiency (2)	Power Factor		Model Number
					120Vac	220Vac	
3150 mA	90 ~ 305 Vac	28~47 Vdc	150 W	91.5%	0.99	0.95	EUC-150S315ST(4)
3500 mA	90 ~ 305 Vac	25~42 Vdc	150 W	91.5%	0.99	0.95	EUC-150S350ST(4)
4200 mA	90 ~ 305 Vac	21~35 Vdc	150 W	91.5%	0.99	0.95	EUC-150S420ST(4)
4900 mA	90 ~ 305 Vac	18~30 Vdc	150 W	90.0%	0.99	0.95	EUC-150S490ST(4)
5950 mA	90 ~ 305 Vac	15~25 Vdc	150 W	90.0%	0.99	0.95	EUC-150S595ST(4)

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

(2) Measured at full load and 220 Vac input.

(3) All the models are certificated to KS, except EUC-150S035DT/ST and EUC-150S045DT/ST

(4) SELV output

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	90 Vac	-	305 Vac	
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	1.05 MIU	At 277Vac /60Hz input, grounding effectively
	-	-	0.75 mA	At 240Vac/ 60Hz input, grounding effectively
Input AC Current	-	-	1.98 A	Measured at full load and 100 Vac input.
	-	-	0.95 A	Measured at full load and 220 Vac input.
Inrush Current(I ² t)	-	-	7.5 A ² s	At 220Vac input, 25°C cold start, duration=2.5 ms, 10%l _{pk} -10%l _{pk} .
PF	0.9	-	-	At 100-277 Vac, 100% Load
THD	-	-	20%	

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%lo	-	5%lo	At full load condition.
Total Output Current Ripple (pk-pk)	-	10%lo	15%lo	At full load condition, 20 MHz BW
Output Current Ripple at < 200 Hz (pk-pk)	-	2%lo	-	At full load condition. Only this component of ripple is associated with visible flicker.
Startup Overshoot Current	-	-	10%lo	At full load condition.

Output Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
No load Output Voltage				
I _O = 350 mA	-	-	465V	
I _O = 450 mA	-	-	365 V	
I _O = 700 mA	-	-	232 V	
I _O = 1050 mA	-	-	155 V	
I _O = 1400 mA	-	-	116 V	
I _O = 1750 mA	-	-	93 V	
I _O = 2100 mA	-	-	78 V	
I _O = 2450 mA	-	-	67 V	
I _O = 2800 mA	-	-	58 V	
I _O = 3150 mA	-	-	51 V	
I _O = 3500 mA	-	-	46 V	
I _O = 4200 mA	-	-	39 V	
I _O = 4900 mA	-	-	33 V	
I _O = 5950 mA	-	-	28 V	
Line Regulation	-	-	± 1%	At full load condition.
Load Regulation	-	-	± 3%	
Turn-on Delay Time	-	1.5 s	3.0 s	Measured at 120Vac input.
	-	1.0 s	2.0 s	Measured at 220Vac input.
Temperature Coefficient	-	-	0.03%/°C	Case temperature = 0°C ~T _c max

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

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 120 Vac input:				
I _O = 350 mA	89.5%	90.5%	-	Measured at full load and steady-state temperature in 25°C ambient; (Efficiency will be about 1.0% lower if measured immediately after startup.)
I _O = 450 mA	89.5%	90.5%	-	
I _O = 700 mA	89.5%	90.5%	-	
I _O = 1050 mA	89.0%	90.0%	-	
I _O = 1400 mA	89.0%	90.0%	-	
I _O = 1750 mA	88.0%	90.0%	-	
I _O = 2100 mA	88.0%	90.0%	-	
I _O = 2450 mA	87.5%	89.5%	-	
I _O = 2800 mA	87.5%	89.5%	-	
I _O = 3150 mA	87.0%	89.0%	-	
I _O = 3500 mA	87.0%	89.0%	-	
I _O = 4200 mA	86.5%	88.5%	-	
I _O = 4900 mA	86.5%	88.5%	-	
I _O = 5950 mA	86.5%	88.5%	-	

General Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 220 Vac input: $I_o = 350 \text{ mA}$ $I_o = 450 \text{ mA}$ $I_o = 700 \text{ mA}$ $I_o = 1050 \text{ mA}$ $I_o = 1400 \text{ mA}$ $I_o = 1750 \text{ mA}$ $I_o = 2100 \text{ mA}$ $I_o = 2450 \text{ mA}$ $I_o = 2800 \text{ mA}$ $I_o = 3150 \text{ mA}$ $I_o = 3500 \text{ mA}$ $I_o = 4200 \text{ mA}$ $I_o = 4900 \text{ mA}$ $I_o = 5950 \text{ mA}$	91.5% 91.5% 91.5% 91.0% 91.0% 89.5% 89.5% 89.5% 89.5% 89.5% 89.5% 89.5% 88.0% 88.0%	92.5% 92.5% 92.5% 92.0% 92.0% 91.5% 91.5% 91.5% 91.5% 91.5% 91.5% 91.5% 90.0% 90.0%	- - - - - - - - - - - - - -	Measured at full load and steady-state temperature in 25°C ambient; (Efficiency will be about 1.0% lower if measured immediately after startup.)
Efficiency at 277 Vac input: $I_o = 350 \text{ mA}$ $I_o = 450 \text{ mA}$ $I_o = 700 \text{ mA}$ $I_o = 1050 \text{ mA}$ $I_o = 1400 \text{ mA}$ $I_o = 1750 \text{ mA}$ $I_o = 2100 \text{ mA}$ $I_o = 2450 \text{ mA}$ $I_o = 2800 \text{ mA}$ $I_o = 3150 \text{ mA}$ $I_o = 3500 \text{ mA}$ $I_o = 4200 \text{ mA}$ $I_o = 4900 \text{ mA}$ $I_o = 5950 \text{ mA}$	91.5% 91.5% 91.5% 91.0% 91.0% 89.5% 89.5% 89.5% 89.5% 89.5% 89.5% 89.5% 88.0% 88.0%	92.5% 92.5% 92.5% 92.0% 92.0% 91.5% 91.5% 91.5% 91.5% 91.5% 91.5% 91.5% 90.0% 90.0%	- - - - - - - - - - - - - -	Measured at full load and steady-state temperature in 25°C ambient; (Efficiency will be about 1.0% lower if measured immediately after startup.)
MTBF	-	370,000 Hours	-	Measured at 120Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime	-	85,000 Hours	-	Measured at 220Vac input, 80%Load and 60°C case temperature; See life time vs. Tc curve for the details
Operating Case Temperature for Safety Tc_s	-35 °C	-	+90 °C	
Operating Case Temperature for Warranty Tc_w	-35 °C	-	+65 °C	
Storage Temperature	-40 °C	-	+85 °C	Humidity: 5% RH to 100% RH
Dimensions Inches (L x W x H) Millimeters (L x W x H)	9.41 x 3.13 x 1.81 239 x 79.5 x 46			With mounting ear 10.47 x 3.13 x 1.81 266 x 79.5 x 46
Net Weight	-	1500 g	-	

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

Safety & EMC Compliance

Safety Category	Standard
UL/CUL	UL 8750, CAN/CSA-C22.2 No. 250.13-12
CE	EN 61347-1, EN61347-2-13
KS	KS C 7655 : 2011

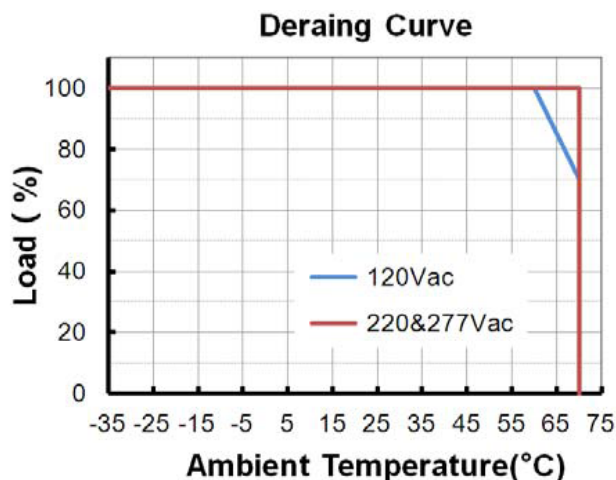
Safety & EMC Compliance (Continued)

EMI Standards	Notes
EN 55015 ⁽¹⁾	Conducted emission Test & Radiated emission Test
EN 61000-3-2	Harmonic current emissions
EN 61000-3-3	Voltage fluctuations & flicker
FCC Part 15 ⁽¹⁾	ANSI C63.4:2009 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 ⁽²⁾
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

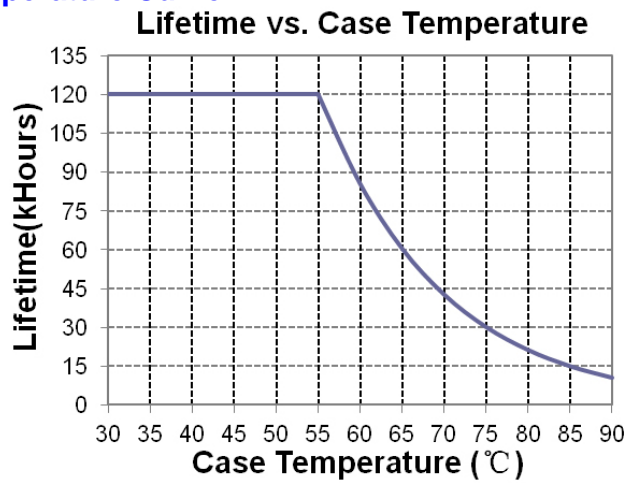
Note: (1) This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

(2) To perform electric strength (hi-pot) testing, the “GDT ground disconnect” (nut and metal lock sheet) on the driver end-cap should be removed temporarily to prevent the internal gas discharge tube from conducting (as allowed by IEC 60598-1 Clause 10.2). After testing is completed, these items must be reinstalled to restore line-to-earth surge protection and secure the end cap.

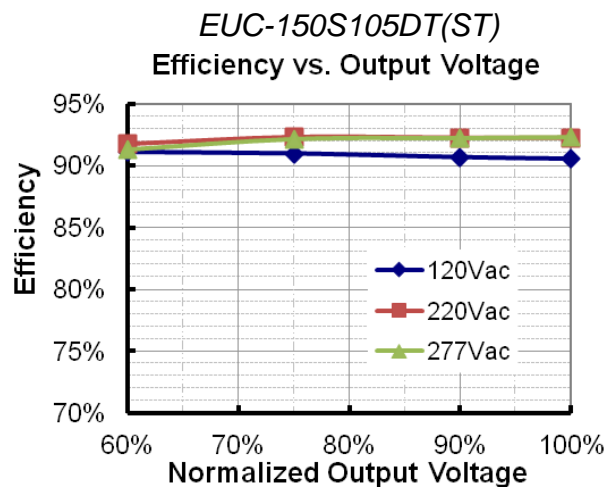
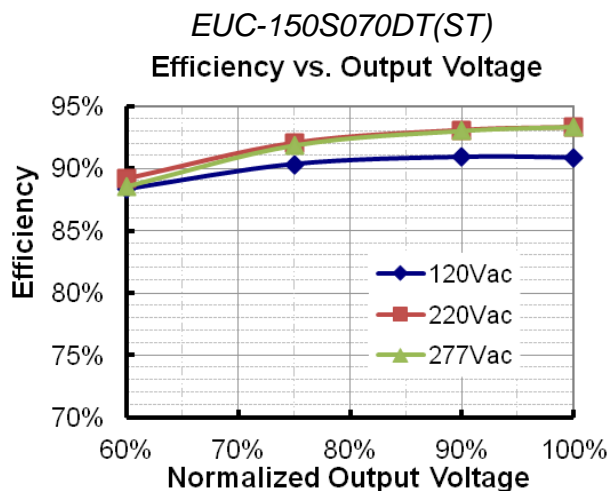
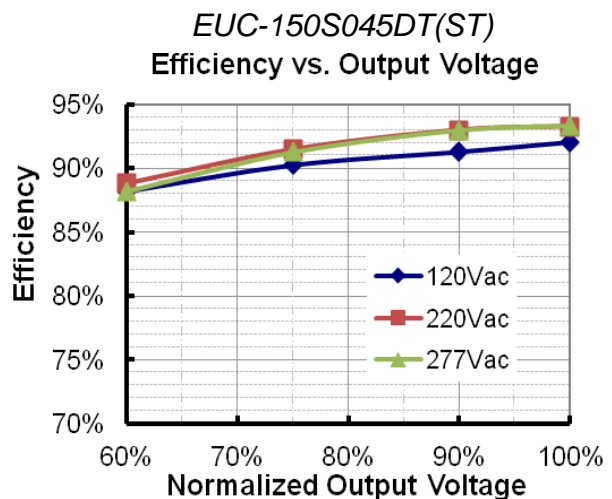
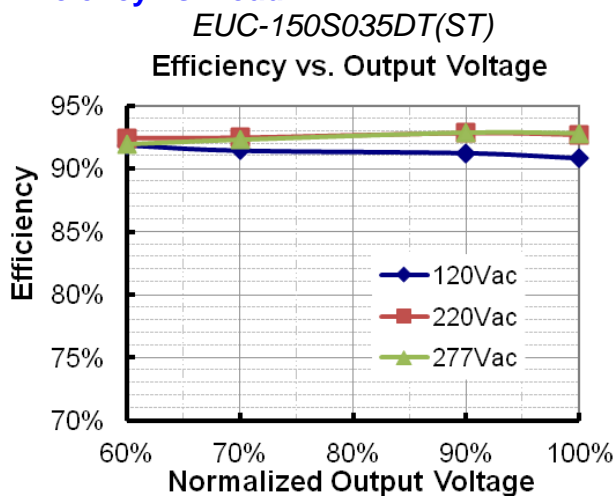
Derating Curve



Lifetime vs. Case Temperature Curve

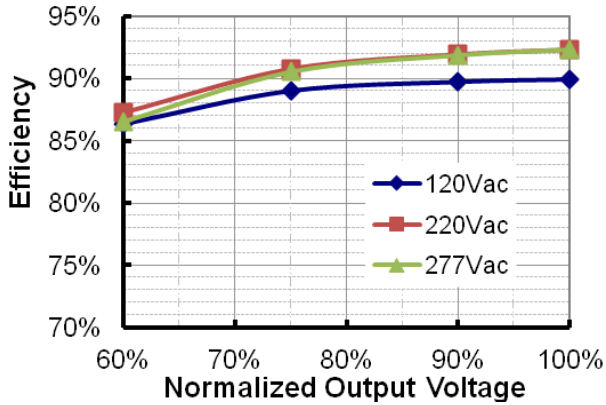


Efficiency vs. Load



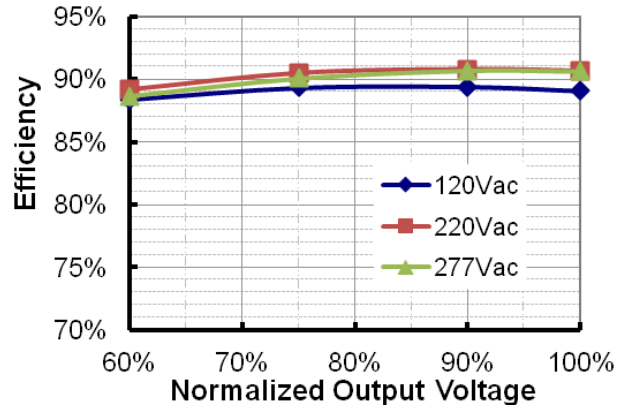
EUC-150S140DT(ST)

Efficiency vs. Output Voltage



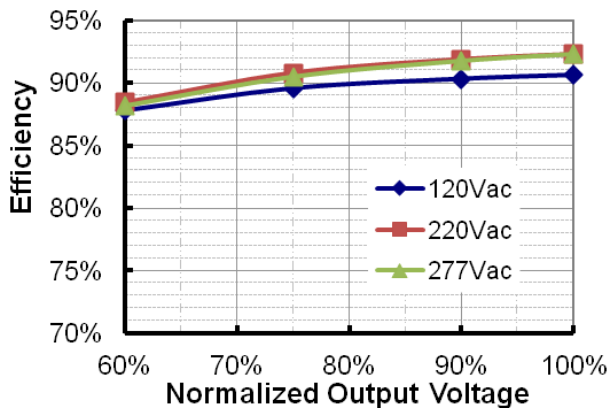
EUC-150S175ST

Efficiency vs. Output Voltage



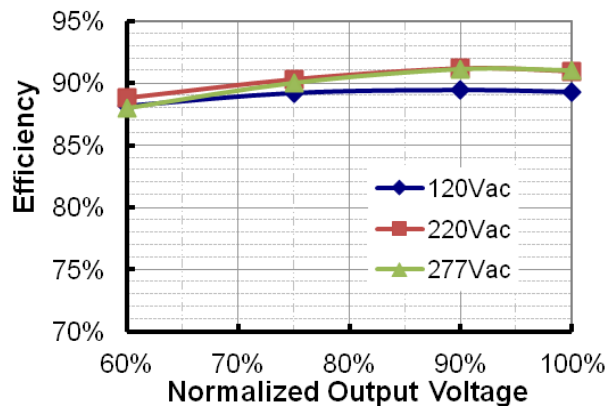
EUC-150S210ST

Efficiency vs. Output Voltage



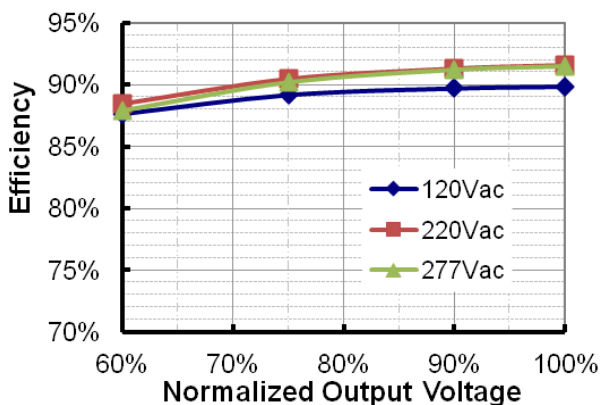
EUC-150S245ST

Efficiency vs. Output Voltage



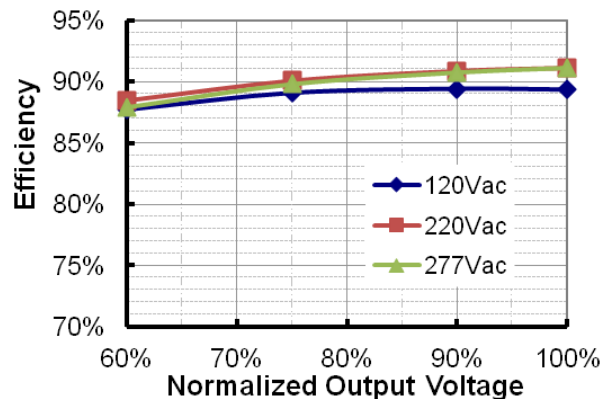
EUC-150S280ST

Efficiency vs. Output Voltage



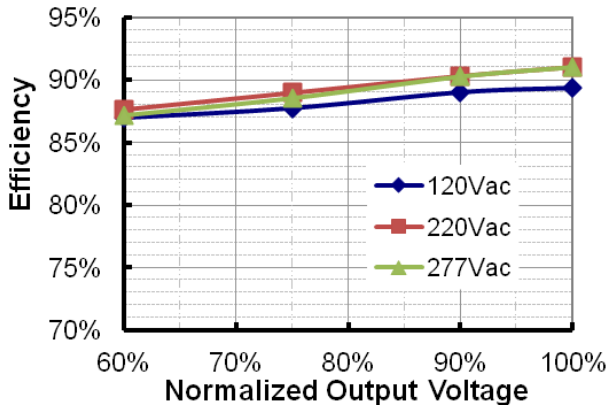
EUC-150S315ST

Efficiency vs. Output Voltage



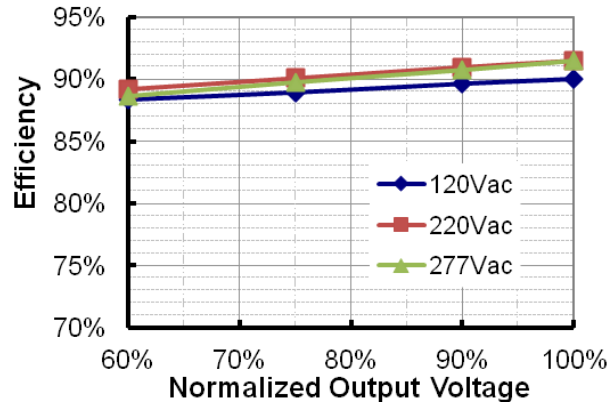
EUC-150S350ST

Efficiency vs. Output Voltage



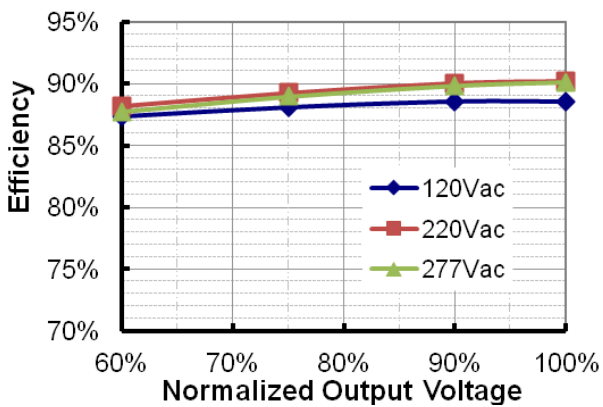
EUC-150S420ST

Efficiency vs. Output Voltage



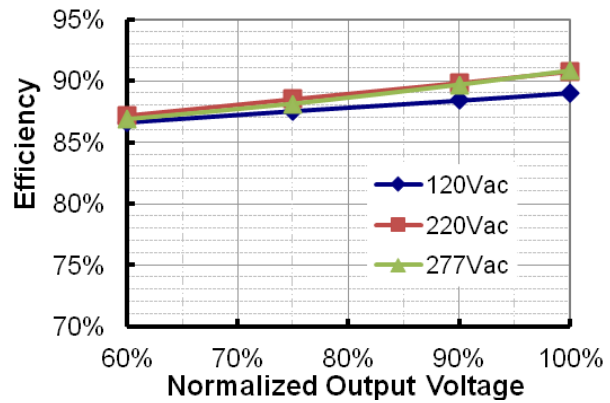
EUC-150S490ST

Efficiency vs. Output Voltage



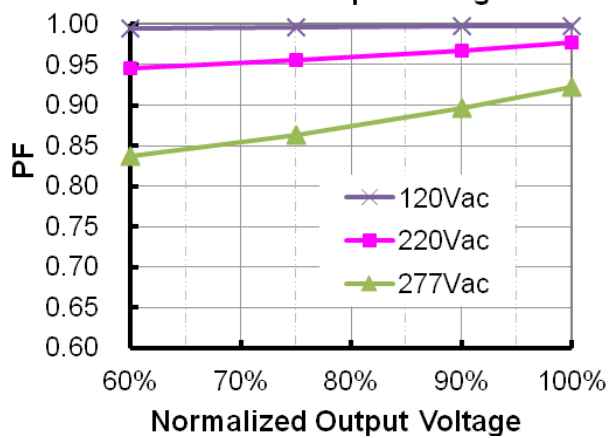
EUC-150S595ST

Efficiency vs. Output Voltage

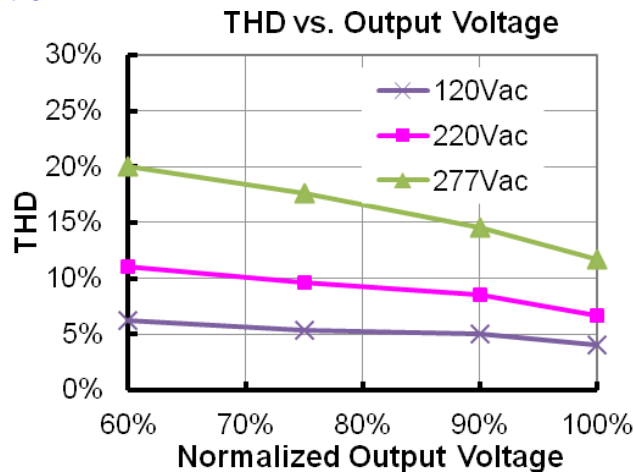


Power Factor Characteristics

PF vs. Output Voltage



Total Harmonic Distortion



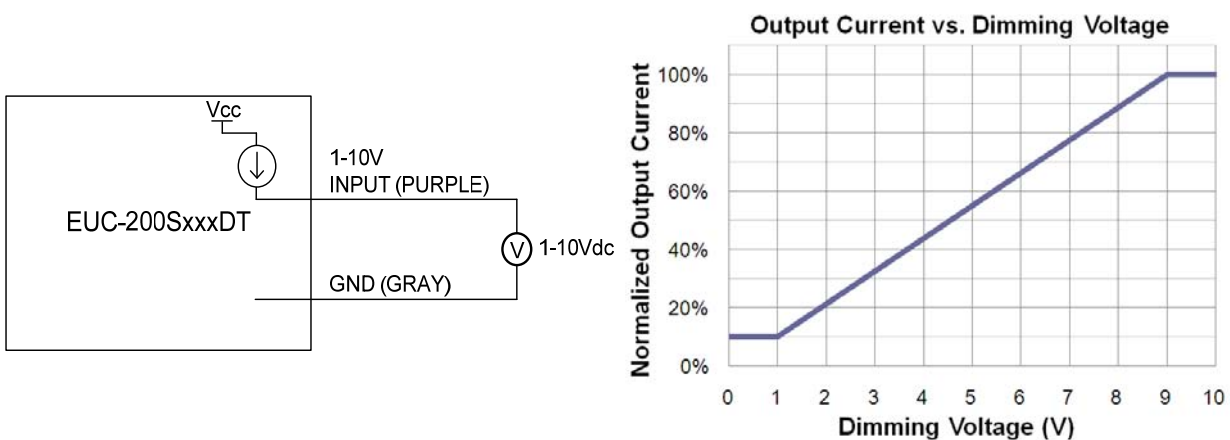
Protection Functions

Parameter	Notes
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.

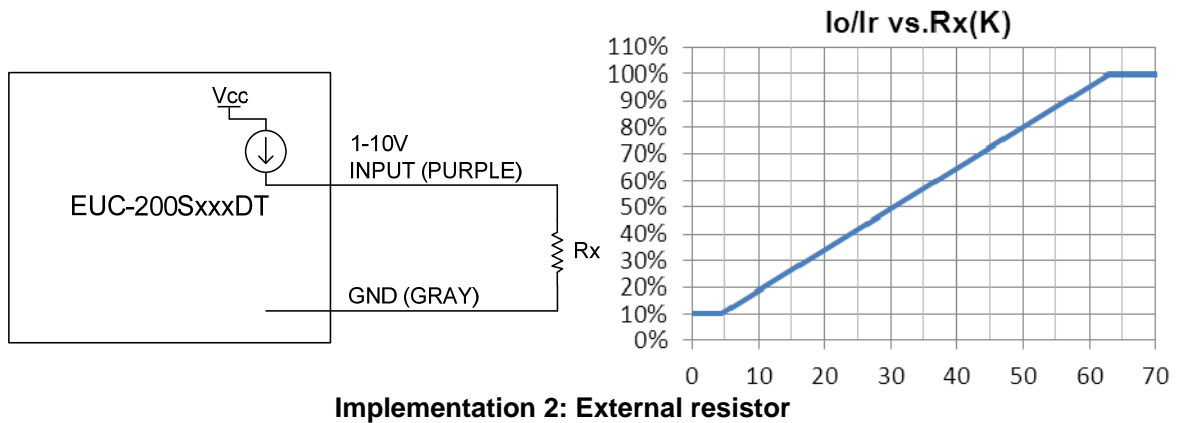
Dimming Control (On secondary side)

Parameter	Min.	Typ.	Max.	Notes
Absolute maximum voltage on the 1~10V input pin	-2 V	-	12 V	
Source current on 1~10V input pin	140 uA	-	220 uA	

The dimmer control may be operated from either a potentiometer or from an input signal of 1 – 10 Vdc. Two recommended implementations are provided below.



Implementation 1: DC input

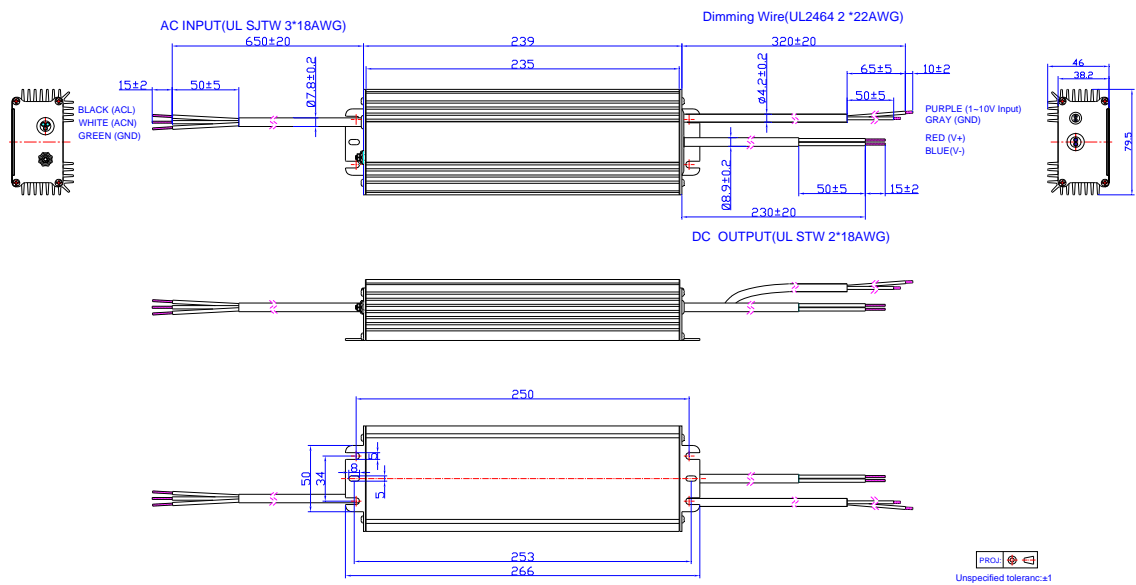


Notes:

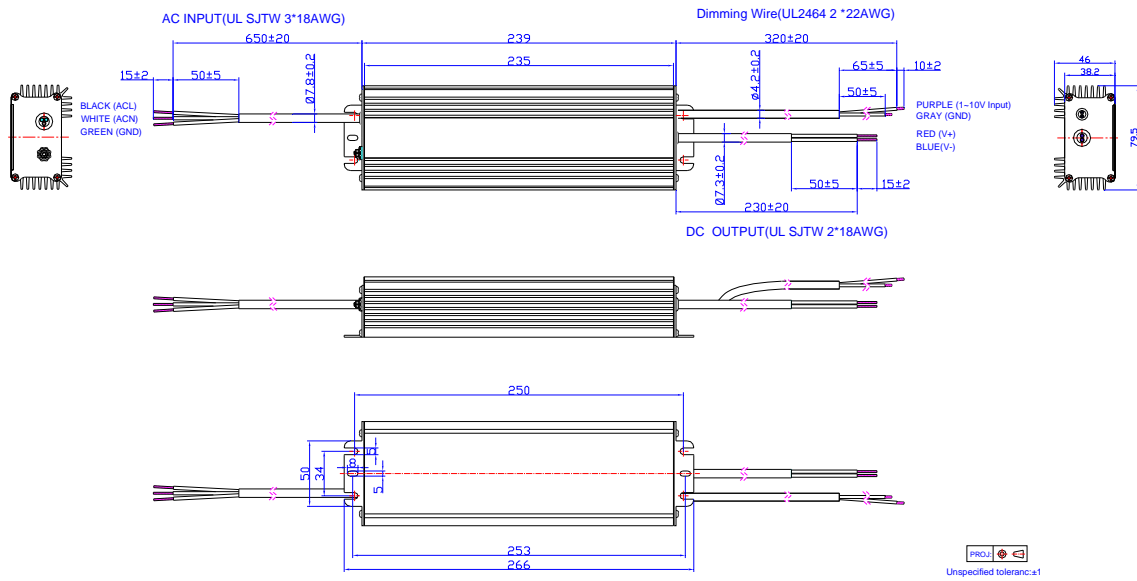
1. I_o is actual output current and I_r is rated current without dimming control.
2. For the driver to operate properly, the load voltage must be maintained above the minimum voltage threshold (approx. 50% of the max. output voltage for any given model).
3. If the output voltage is maintained above 50% of the maximum output voltage, the dimming control may be operated over the entire 1-10V range with output current varying from 100% down to practically 10%.
4. The dimming signal is allowed to be less than 1V, however, when it for 0-1V, the output current is 10% I_o .
5. Do not connect the GND of dimming to the output; otherwise, the LED driver cannot work normally.

Mechanical Outline

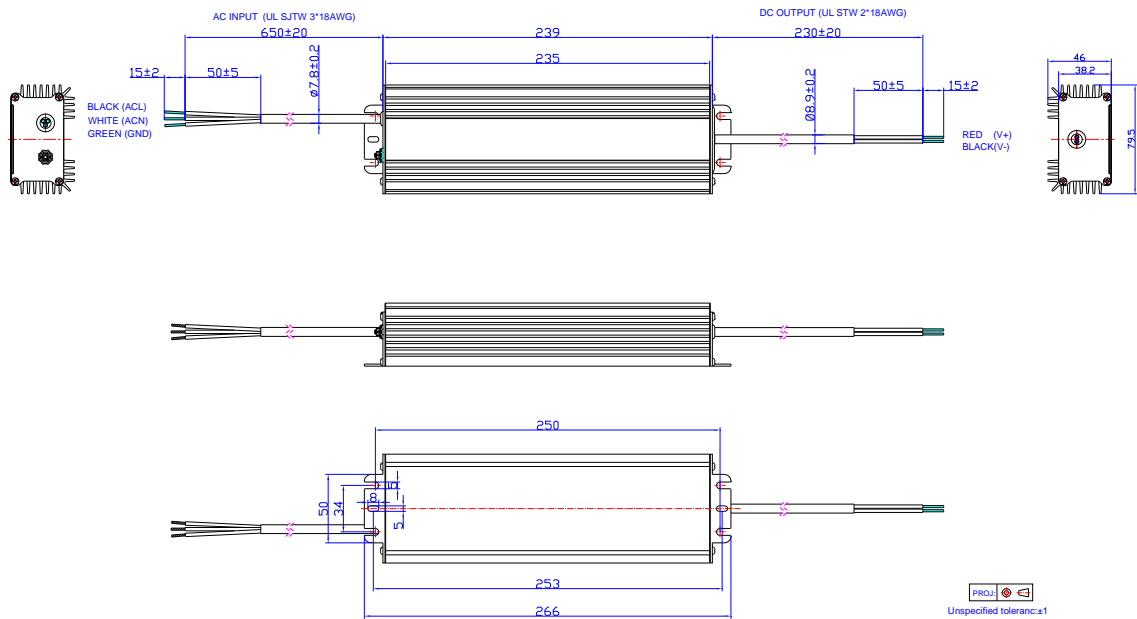
EUC-150S035/045DT



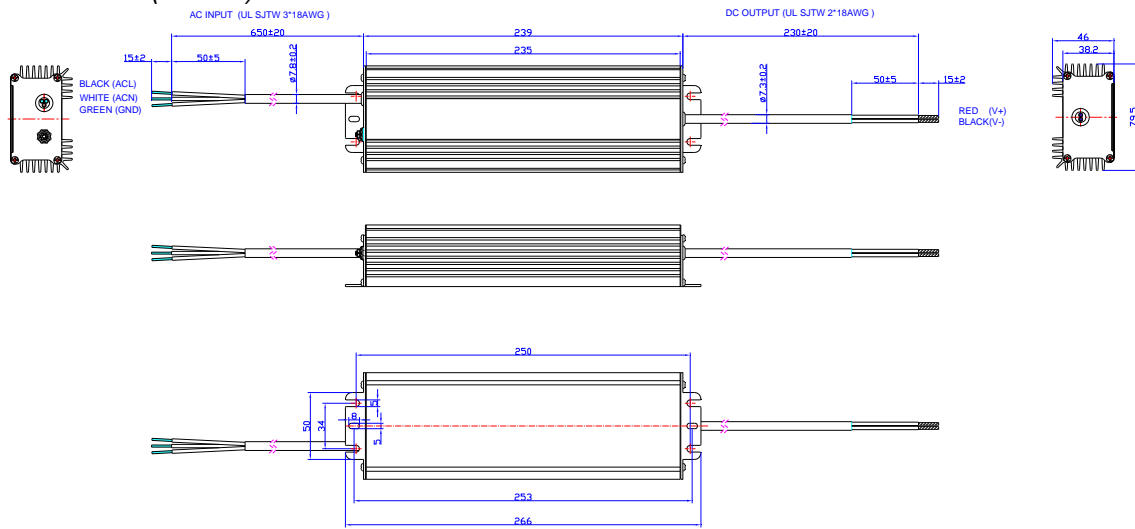
EUC-150SxxxDT(Others)



EUC-150S035/045ST



EUC-150SxxxST(Others)



RoHS Compliance

Our products comply with the European Directive 2011/65/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
2013-11-22	A	Datasheets Release	/	/
2015-09-10	B	Format	/	Update
		External Grounding Screw Solution	/	/
		Features	/	Update
		Description		Update
		Models	Notes	Update
		Output Specifications	Output Current Ripple at < 200 Hz (pk-pk)	Added
		Output Specifications	Startup Overshoot Current	Added
		Output Specifications	No load Output Voltage	Added
		General Specifications	Case Temperature	Operating Case Temperature for Safety Tc_s
		General Specifications	Operating Case Temperature for Warranty Tc_w	Added
		General Specifications	Storage Temperature	Added
		Environmental Specifications	/	Delete
		Safety & EMC Compliance		Update
		Protection Functions		Update
Dimming Control		Update		
Mechanical Outline		Update		
2016-04-07	C	KS	/	Added
		Models	/	Update
		General Specifications	With mounting ear	Added
		Safety & EMC Compliance	/	Update