

## Features

- Low THD, 10% Max up to 240 Vac
- Compact Metal Case with Excellent Thermal Performance
- Input Surge Protection: 4kV line-line, 6kV line-earth
- High Reliability & Long Lifetime: 85,800 hrs. at 70°C Case Temperature
- Suitable for Independent Use
- Input UVP and Input OVP
- Waterproof(IP67)
- SELV Output
- 5 Years Warranty



CE TUV CB CCC K

## Description

The EUC-060SxxxSVM000x series is a 60W, constant-current IP67 LED driver that operates from 90-305Vac input with excellent power factor and THD feature. It is created for low bay, tunnel and street lights. The high efficiency of these drivers and compact 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, input under voltage, input over voltage, output over voltage, short circuit, and over temperature.

## Models

Output Current Range	Input Voltage Range(1)	Output Voltage Range	Max. Output Power	Typical Efficiency (2)	Power Factor		Model Number
					120Vac	220Vac	
500 mA	90 ~ 305 Vac	60 ~ 120 Vdc	60 W	90.0%	0.99	0.96	EUC-060S070SVM0004
700 mA	90 ~ 305 Vac	48 ~ 86 Vdc	60 W	89.0%	0.99	0.96	EUC-060S070SVM
860 mA	90 ~ 305 Vac	35 ~ 70 Vdc	60 W	89.0%	0.99	0.96	EUC-060S105SVM0004 <sup>(3)</sup>
1050 mA	90 ~ 305 Vac	34 ~ 57 Vdc	60 W	89.0%	0.99	0.96	EUC-060S105SVM <sup>(3)</sup>
1200 mA	90 ~ 305 Vac	25 ~ 50 Vdc	60 W	89.0%	0.99	0.96	EUC-060S180SVM0006 <sup>(3)</sup>
1400 mA	90 ~ 305 Vac	21 ~ 43 Vdc	60 W	88.0%	0.99	0.96	EUC-060S180SVM0004 <sup>(3)</sup>
1800 mA	90 ~ 305 Vac	20 ~ 33 Vdc	60 W	87.0%	0.99	0.96	EUC-060S180SVM <sup>(3)</sup>

**Notes:** (1) Certified input voltage range: 120-240Vac.

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

(3) SELV output.

## Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	90 Vac	-	305 Vac	
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.70 mA	IEC60598-1; 240Vac/ 60Hz

## Input Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Input AC Current	-	-	0.66 A	Measured at full load and 120 Vac input.
	-	-	0.40 A	Measured at full load and 220 Vac input.
Inrush Current( $I^2t$ )	-	-	0.26 A <sup>2</sup> s	At 220Vac input, 25°C cold start, duration= 236 µs, 10%Ipk-10%Ipk. See Inrush Current Waveform for the details.
Power Factor	0.90	-	-	120-240Vac, 75%-100%Load(45~60W)
THD	-	-	10%	

## Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-8%Io	-	8%Io	At full load condition.
Total Output Current Ripple (pk-avg)	-	50%Io	75%Io	At full load condition.
Startup Overshoot Current	-	5%Io	10%Io	At full load condition.
No Load Output Voltage EUC-060S070SVM0004	-	-	160V	
EUC-060S070SVM	-	-	160V	
EUC-060S105SVM0004	-	-	100V	
EUC-060S105SVM	-	-	100V	
EUC-060S180SVM0006	-	-	63V	
EUC-060S180SVM0004	-	-	63V	
EUC-060S180SVM	-	-	63V	
Line Regulation	-	-	±5.0%	Measured at full load
Load Regulation	-	-	±5.0%	
Turn-on Delay Time	-	1.0 s	1.5 s	Measured at 120Vac input, 75%-100%Load.
	-	0.5 s	1.0 s	Measured at 220Vac input, 75%-100%Load.
Temperature Coefficient of I <sub>omax</sub>	-	0.06%/°C	-	Case temperature = 0°C ~T <sub>c</sub> max

**Note:** All specifications are tested by Cree XLamp XP-G and typical measured at 220Vac and 25°C unless otherwise stated.

## General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 120 Vac input: EUC-060S070SVM0004 EUC-060S070SVM EUC-060S105SVM0004 EUC-060S105SVM EUC-060S180SVM0006 EUC-060S180SVM0004 EUC-060S180SVM	86.0% 85.0% 85.0% 85.0% 85.0% 84.0% 84.0%	88.0% 87.0% 87.0% 87.0% 87.0% 86.0% 85.0%	- - - - - - -	Measured at full load and steady-state temperature in 25°C ambient.
Efficiency at 220 Vac input: EUC-060S070SVM0004 EUC-060S070SVM EUC-060S105SVM0004 EUC-060S105SVM EUC-060S180SVM0006 EUC-060S180SVM0004 EUC-060S180SVM	88.0% 87.0% 87.0% 87.0% 87.0% 86.0% 85.0%	90.0% 89.0% 89.0% 89.0% 89.0% 88.0% 87.0%	- - - - - - -	Measured at full load and steady-state temperature in 25°C ambient.
Efficiency at 277 Vac input: EUC-060S070SVM0004 EUC-060S070SVM EUC-060S105SVM0004 EUC-060S105SVM EUC-060S180SVM0006 EUC-060S180SVM0004 EUC-060S180SVM	88.0% 87.0% 87.0% 87.0% 87.0% 86.0% 85.0%	90.0% 89.0% 89.0% 89.0% 89.0% 88.0% 87.0%	- - - - - - -	Measured at full load and steady-state temperature in 25°C ambient.
MTBF	-	843,000 Hours	-	Measured at 220Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime	-	85,800 Hours	-	Measured at 120Vac input, 80%Load and 70°C case temperature; See lifetime 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	-	+75 °C	Case temperature for 5 years warranty. Humidity: 10% RH to 100% RH.
Storage Temperature	-40 °C	-	+85 °C	Humidity: 5% RH to 100% RH
Dimensions Inches (L × W × H) Millimeters (L × W × H)	3.74 x 2.52 x 1.26 95 x 64 x 32			With mounting ear 4.41 x 2.52 x 1.26 112 x 64 x 32
Net Weight	-	400 g	-	

**Note:** All specifications are tested by Cree XLamp XP-G and typical at 25°C unless otherwise stated.

## Safety & EMC Compliance

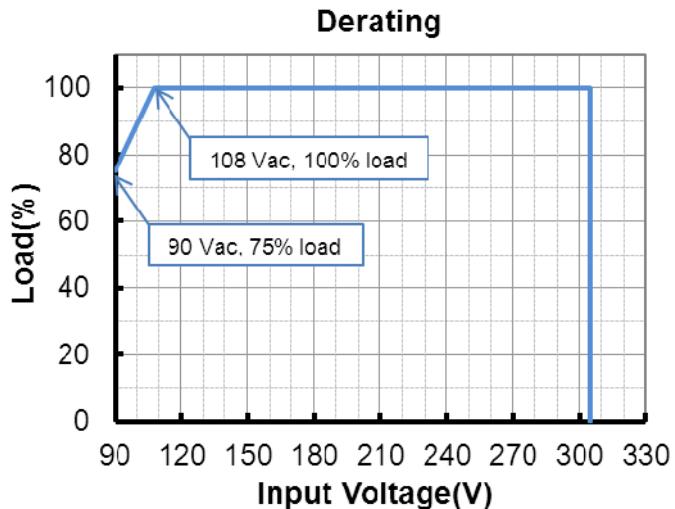
Safety Category	Standard
CE	EN 61347-1, EN61347-2-13
KS	KS C 7655

## Safety & EMC Compliance (Continued)

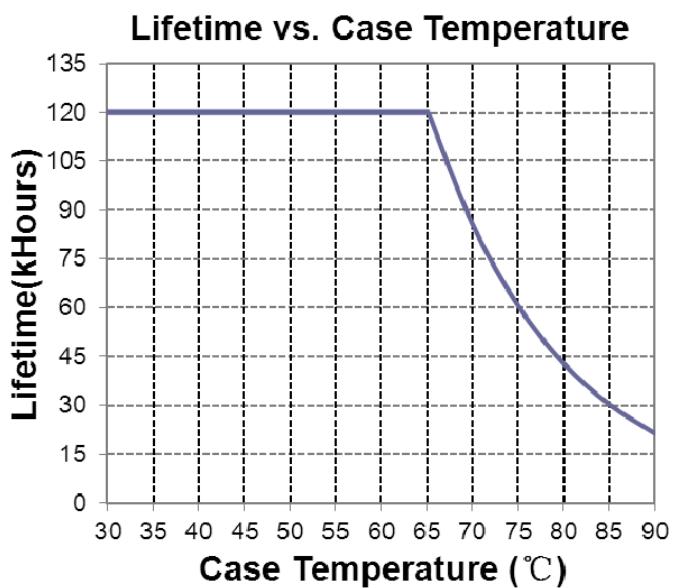
EMI Standards	Notes
EN 55015 <sup>(1)</sup>	Conducted emission Test & Radiated emission Test
EN 61000-3-2	Harmonic current emissions
EN 61000-3-3	Voltage fluctuations & flicker
EMS Standards	Notes
EN 61000-4-2	Electrostatic Discharge (ESD): 8 kV air discharge, 4 kV contact discharge
EN 61000-4-3	Radio-Frequency 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.

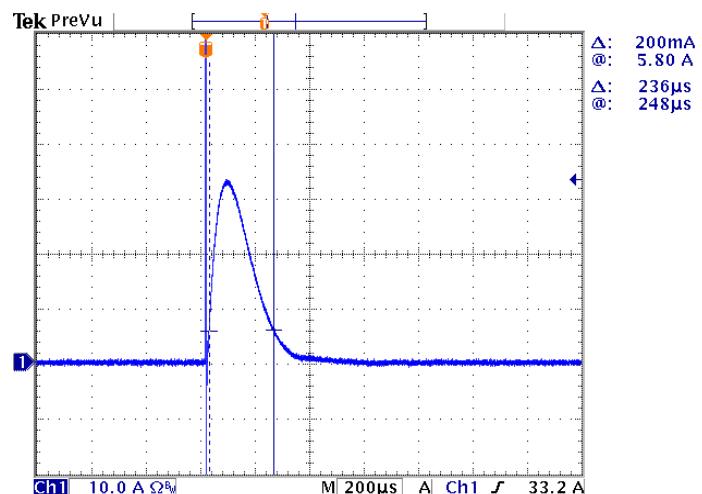
## Derating



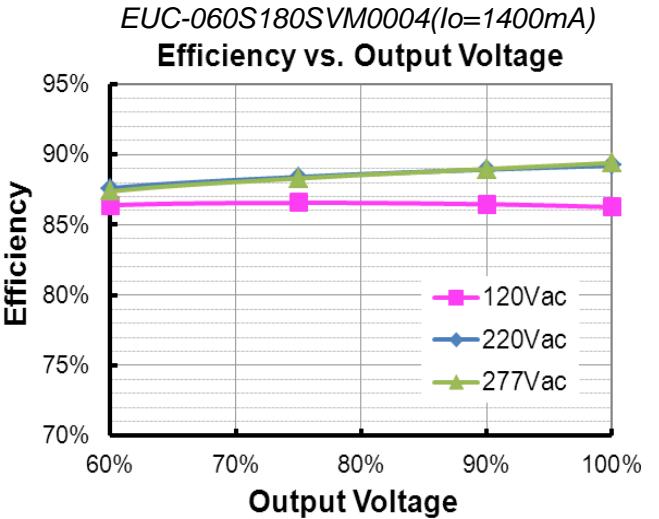
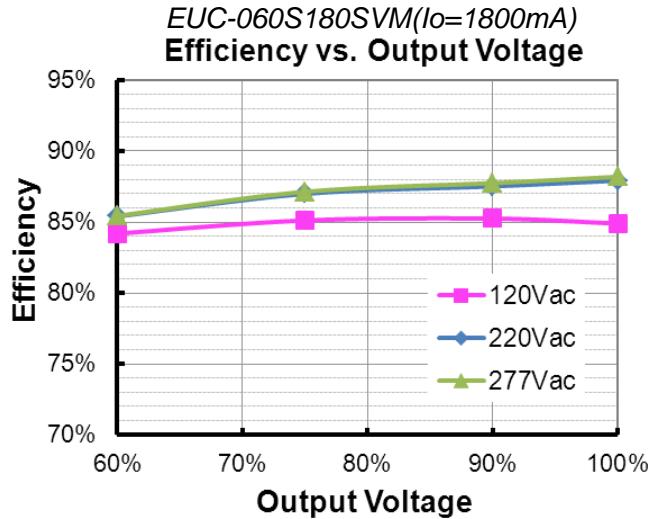
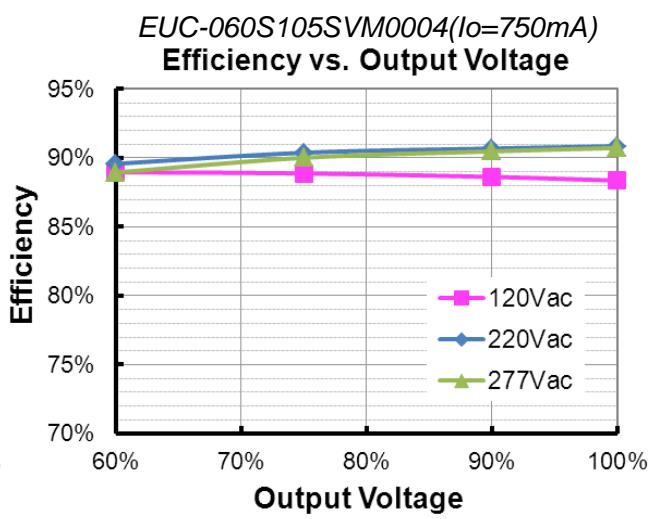
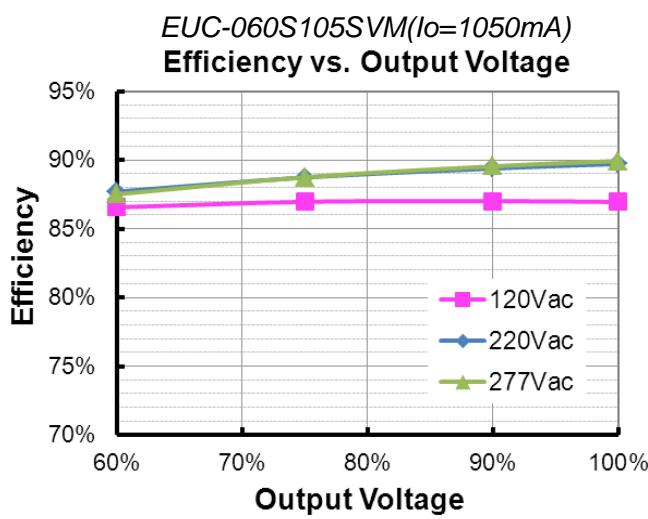
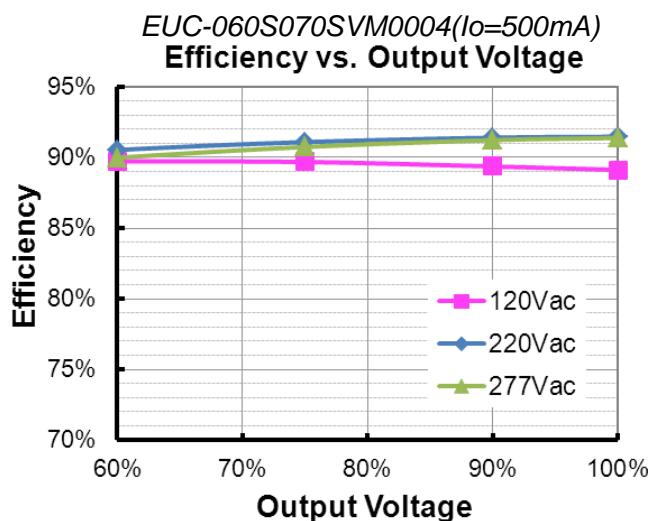
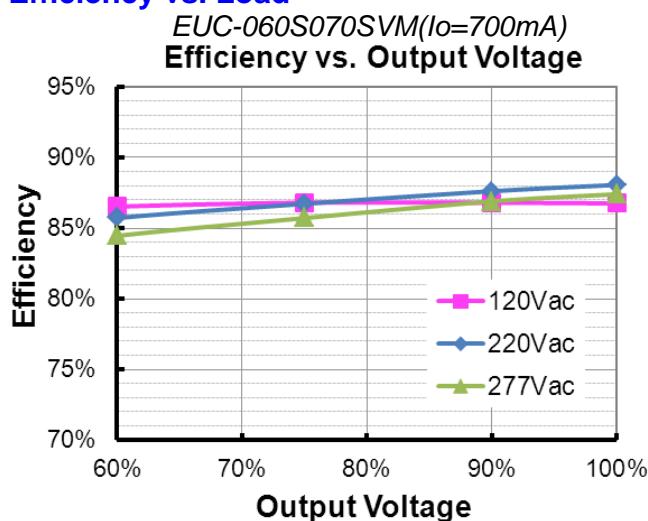
## Lifetime vs. Case Temperature



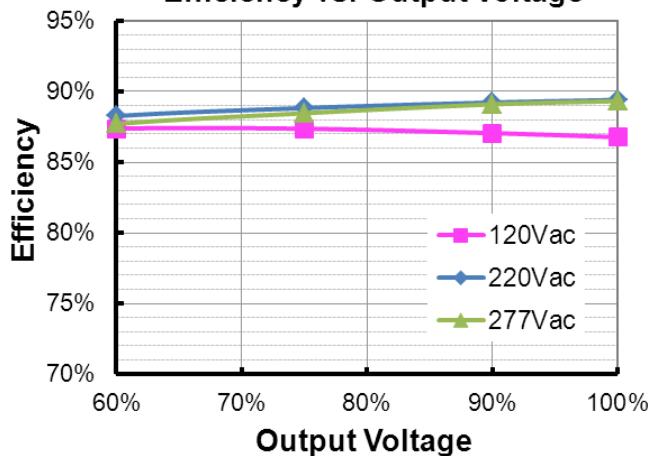
## Inrush Current Waveform



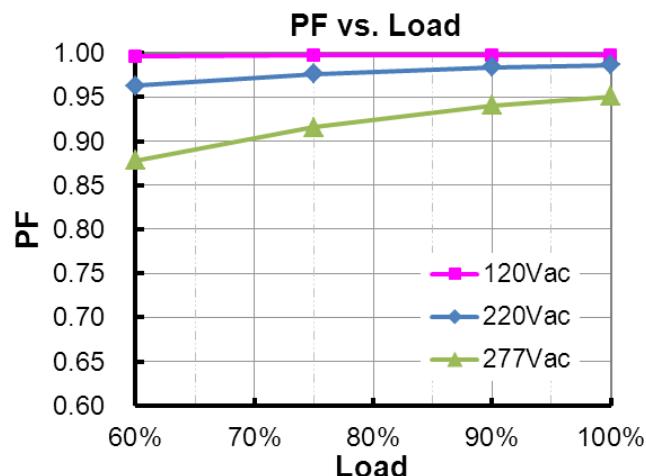
## Efficiency vs. Load



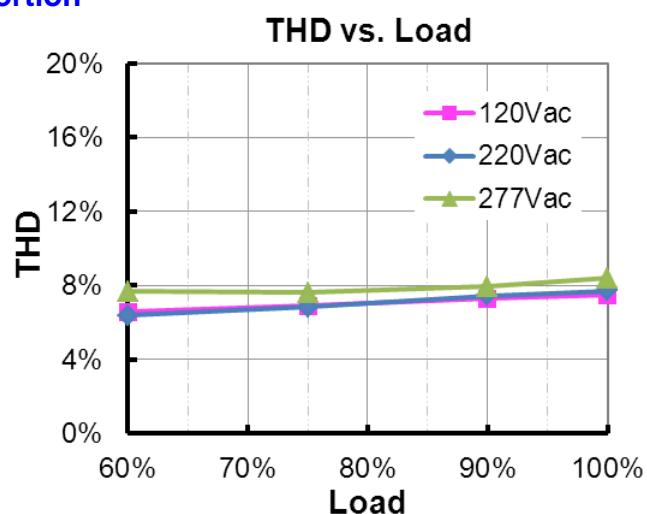
EUC-060S180SVM0006( $I_o=1200mA$ )  
Efficiency vs. Output Voltage



## Power Factor



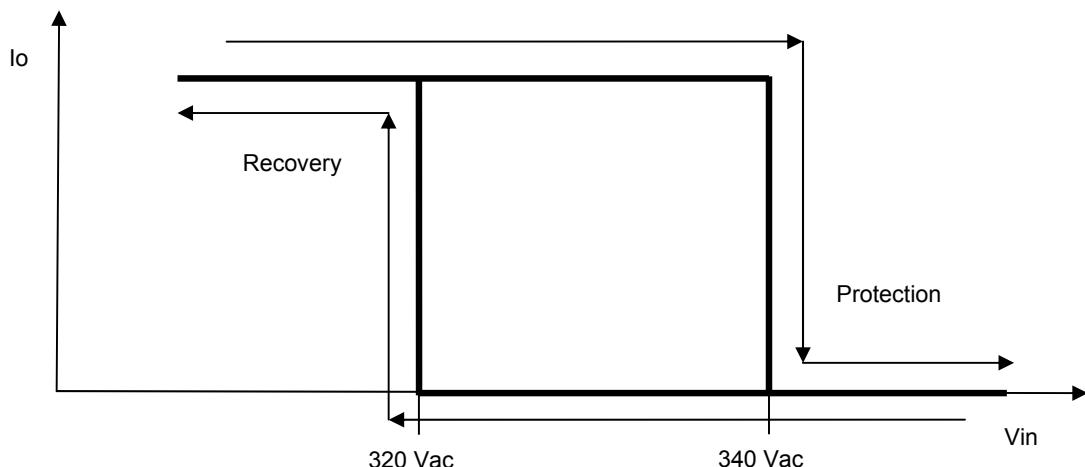
## Total Harmonic Distortion



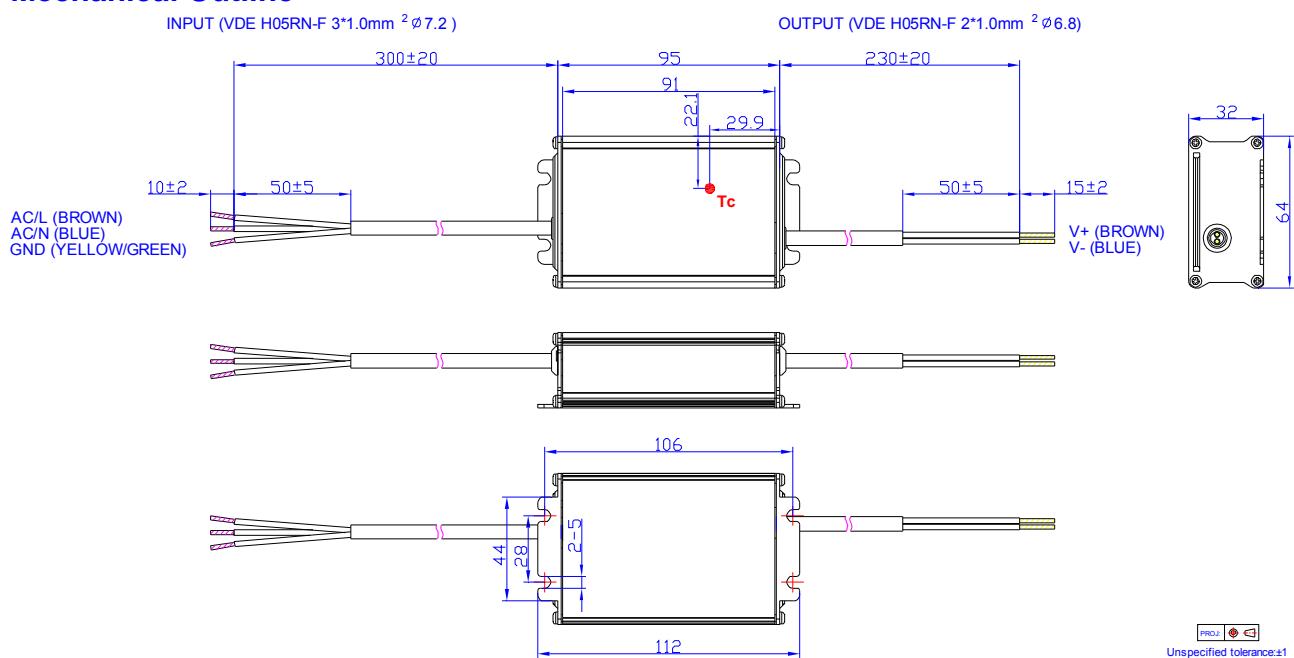
## Protection Functions

Parameter	Min.	Typ.	Max.	Notes
Over Voltage Protection	Limits output voltage at no load and in case the normal voltage limit fails.			
Short Circuit Protection	Auto Recovery. 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 Temperature Protection	Decreases output current. Returning to normal after over temperature is removed.			
Input Under Voltage Protection	Auto Recovery. Turn off the output when the input voltage falls below 80±10V. And the driver will restart when the input voltage exceeds 85±10V.			
Input Over Voltage Protection	Input Protection Voltage	330 Vac	340 Vac	350 Vac
	Recovery Voltage	300 Vac	320 Vac	340 Vac
	Max. of Input Over Voltage	-	-	380 Vac

### ● Input Over Voltage Protection Diagram



## Mechanical Outline



## 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
2016-08-05	A	Datasheet Release	/	/
2016-12-26	B	Input Voltage Range(Vac)	108 ~ 305 Vac	90 ~ 305 Vac
		Input Voltage Range(Vdc)	127 ~ 300 Vdc	Deleted
		Model Number - EUC-060S070SVM( $Io=700mA$ )	EUC-060S070SVM0000	EUC-060S070SVM
		Model Number - EUC-060S105SVM( $Io=1050mA$ )	EUC-060S105SVM0000	EUC-060S105SVM
		Model Number - EUC-060S180SVM( $Io=1800mA$ )	EUC-060S180SVM0000	EUC-060S180SVM
		Total Output Current Ripple	Total Output Current Ripple (pk-pk) Max.= 150% $Io$	Total Output Current Ripple (pk-avg) Max.= 75% $Io$
		Derating Curve	/	Added
2017-03-20	C	Features	/	Updated
		Description	/	Updated
2017-04-17	D	Mechanical Outline	/	Updated