

## Features

- High Efficiency (Up to 93.5%)
- Constant Voltage Output
- Input Surge Protection: DM 4kV, CM 6kV
- All-Around Protection: OVP, OCP, SCP, OTP
- IP67 and UL Dry / Damp / Wet Location
- SELV Output
- TYPE HL, for use in a Class I, Division 2 hazardous (Classified) location
- 5 Years Warranty



## Description

The EUV-250SxxxST series is a 250W, constant-voltage LED driver that operates from 90-305 Vac input with excellent power factor. It is created for architecture lighting, decorative lighting, high bay, high mast, arena and roadway lights, etc. 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, over current, short circuit, and over temperature.

## Models

Output Voltage	Input Voltage Range(1)	Output Current Range	Max. Output Power	Typical Efficiency (2)	Power Factor		Model Number (3)
					120Vac	220Vac	
12 Vdc	90 ~ 305 Vac	0~18.33 A	220 W	91.5%	0.99	0.93	EUV-250S012ST
24 Vdc	90 ~ 305 Vac	0~10.41 A	250 W	92.0%	0.99	0.96	EUV-250S024ST
28 Vdc	90 ~ 305 Vac	0~8.93 A	250 W	92.0%	0.99	0.96	EUV-250S028ST
36 Vdc	90 ~ 305 Vac	0~6.94 A	250 W	92.5%	0.99	0.96	EUV-250S036ST
42 Vdc	90 ~ 305 Vac	0~5.95 A	250 W	92.5%	0.99	0.96	EUV-250S042ST
48 Vdc	90 ~ 305 Vac	0~5.20 A	250 W	93.0%	0.99	0.96	EUV-250S048ST
54 Vdc	90 ~ 305 Vac	0~4.62 A	250 W	93.5%	0.99	0.96	EUV-250S054ST

**Notes:** (1) Certified input voltage range: UL 100-277Vac; otherwise: 100-240Vac

(2) Measured at 100% 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	-	-	0.75 mA	At 277Vac 60Hz input , grounding effectively
Input AC Current	-	-	3.0 A	Measured at 100% load and 100 Vac input.
	-	-	1.4 A	Measured at 100% load and 220 Vac input.

## Input Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Inrush Current(I <sup>2</sup> t)	-	-	2.33 A <sup>2</sup> s	At 220Vac input, 25°C cold start, duration=3 ms, 10%Ipk-10%Ipk.
Power Factor	0.90	-	-	At 100-277Vac, 50-60Hz, 75%-100% load
THD	-	-	20%	

## Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Voltage Tolerance	-5%	-	5%	At 100% load condition.
Ripple and Noise (pk-pk)	-	-	2% 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.
Output Overshoot / Undershoot	-	-	10%	When power on or off.
Line Regulation	-	-	±1%	At 100% load condition.
Load Regulation	-	-	±3%	
Turn-on Delay Time	-	0.4 s	1.0 s	Measured at 120Vac input, 75%-100% load.
	-	0.4 s	1.0 s	Measured at 220Vac input, 75%-100% load.
Load Dynamic Response	Output Deviation	-	-	5% V <sub>O</sub>
	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.

## General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 120 Vac input: V <sub>O</sub> = 12 V V <sub>O</sub> = 24 V V <sub>O</sub> = 28 V V <sub>O</sub> = 36 V V <sub>O</sub> = 42 V V <sub>O</sub> = 48 V V <sub>O</sub> = 54 V	89.0% 89.5% 89.5% 90.0% 90.0% 90.5% 91.0%	89.5% 90.0% 90.0% 90.5% 90.5% 91.0% 91.5%	- - - - - - -	Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 1.5% lower if measured immediately after startup.)
Efficiency at 220 Vac input: V <sub>O</sub> = 12 V V <sub>O</sub> = 24 V V <sub>O</sub> = 28 V V <sub>O</sub> = 36 V V <sub>O</sub> = 42 V V <sub>O</sub> = 48 V V <sub>O</sub> = 54 V	91.0% 91.5% 91.5% 92.0% 92.0% 92.5% 93.0%	91.5% 92.0% 92.0% 92.5% 92.5% 93.0% 93.5%	- - - - - - -	Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 1.5% lower if measured immediately after startup.)

## General Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 277 Vac input: $V_o = 12\text{ V}$ $V_o = 24\text{ V}$ $V_o = 28\text{ V}$ $V_o = 36\text{ V}$ $V_o = 42\text{ V}$ $V_o = 48\text{ V}$ $V_o = 54\text{ V}$	91.0% 91.5% 91.5% 92.0% 92.0% 92.5% 93.0%	91.5% 92.0% 92.0% 92.5% 92.5% 93.0% 93.5%	- - - - - - -	Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 1.5% lower if measured immediately after startup.)
No Load Power Dissipation	-	-	5 W	
MTBF	-	250,000 hours	-	Measured at 120Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime	-	59,400 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	-40 °C	-	+90 °C	
Operating Case Temperature for Warranty Tc_w	-40 °C	-	+60 °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)	8.82 × 3.54 × 1.46 224 × 90 × 37			With mounting ear 9.88 × 3.54 × 1.46 251 × 90 × 37
Net Weight	-	1300 g	-	

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

## Safety & EMC Compliance

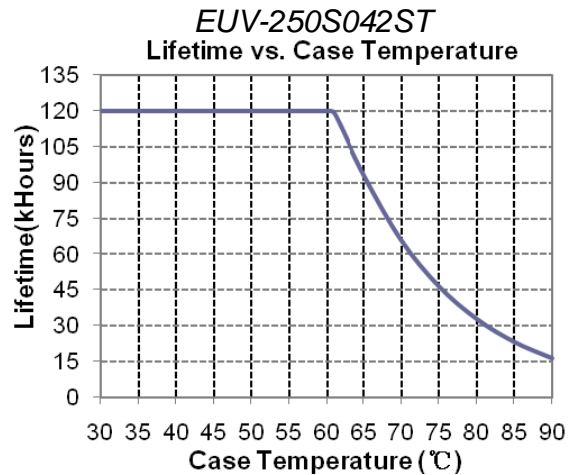
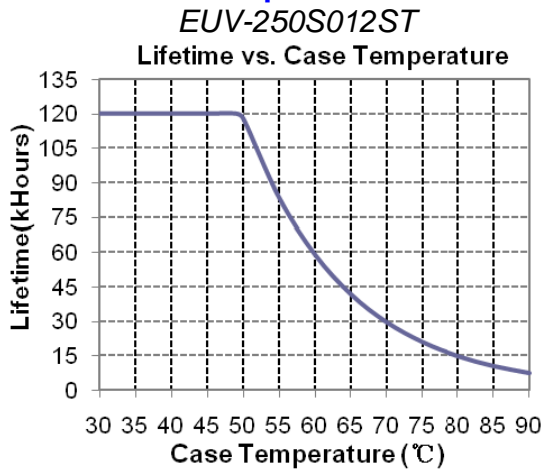
Safety Category	Standard
UL/CUL	UL 8750, CAN/CSA-C22.2 No. 250.13
CE	EN 61347-1, EN61347-2-13
KS	KS C 7655
EMI Standards	Notes
EN 55015 <sup>(1)</sup>	Conducted emission Test & Radiated emission Test
EN 61000-3-2	Harmonic current emissions
EN 61000-3-3	Voltage fluctuations & flicker
EMS Standards	Notes
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 <sup>(2)</sup>
EN 61000-4-6	Conducted Radio Frequency Disturbances Test-CS

## Safety & EMC Compliance (Continued)

EMS Standards	Notes
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.

## Lifetime vs. Case Temperature Curve

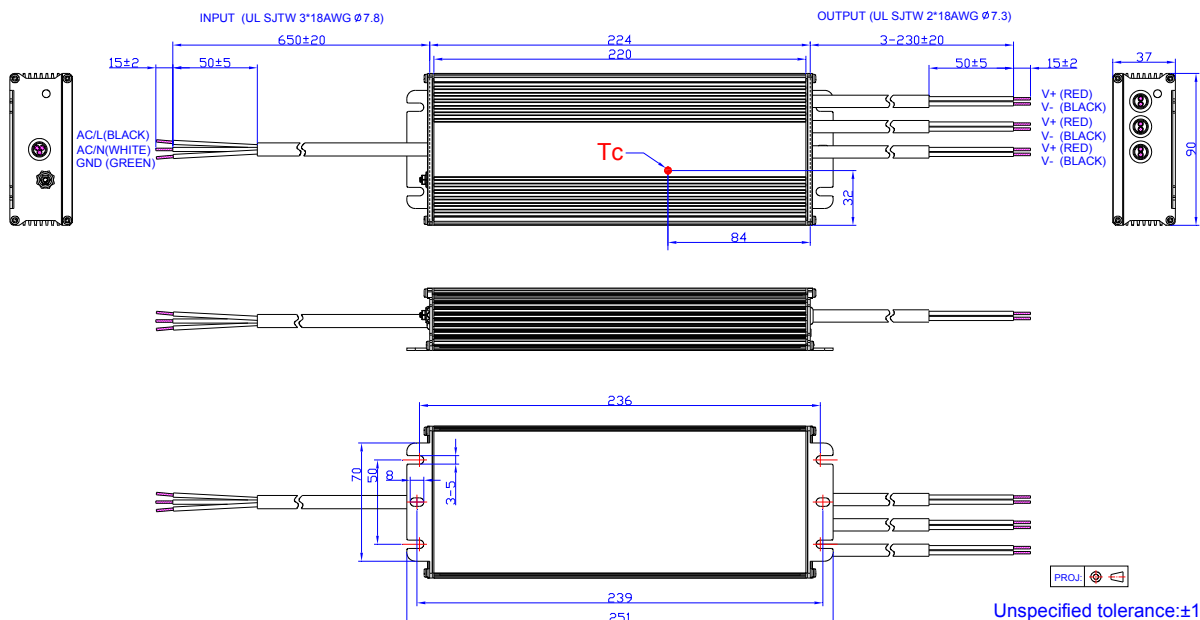


## Protection Functions

Parameter	Min.	Typ.	Max.	Notes
Over Current Protection	130% I <sub>o</sub>	165% I <sub>o</sub>	200% 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 will occur when any output is short circuited. The output shall return to normal when the fault condition is removed.			
Over Voltage Protection	Limits output voltage at no load and in case the normal voltage limit fails.			

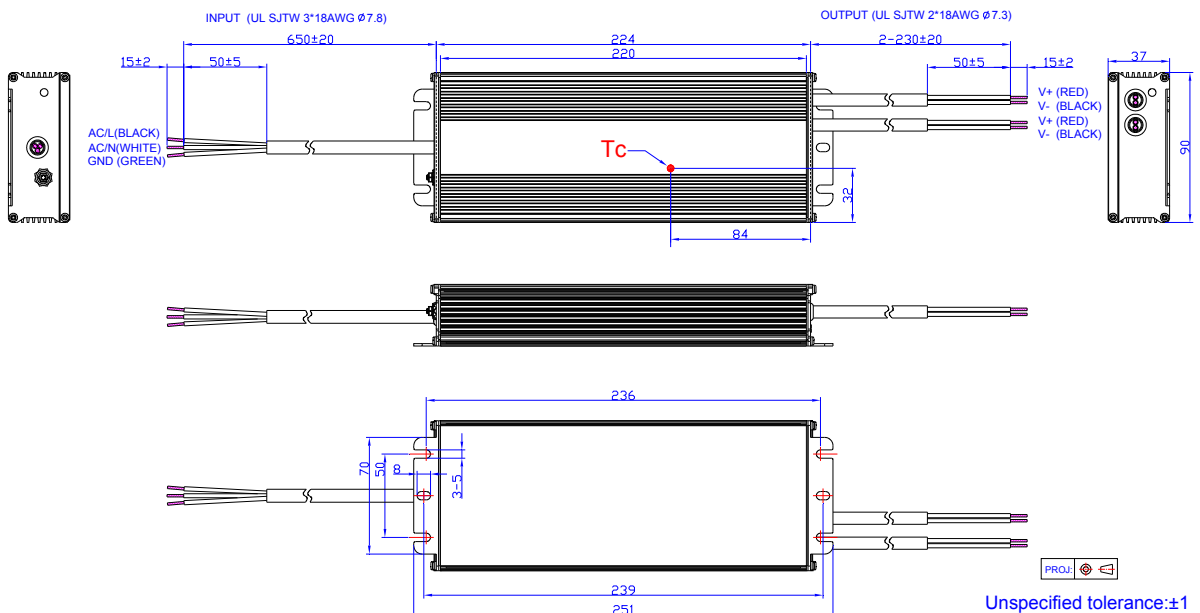
## Mechanical Outline

### EUV-250S012ST



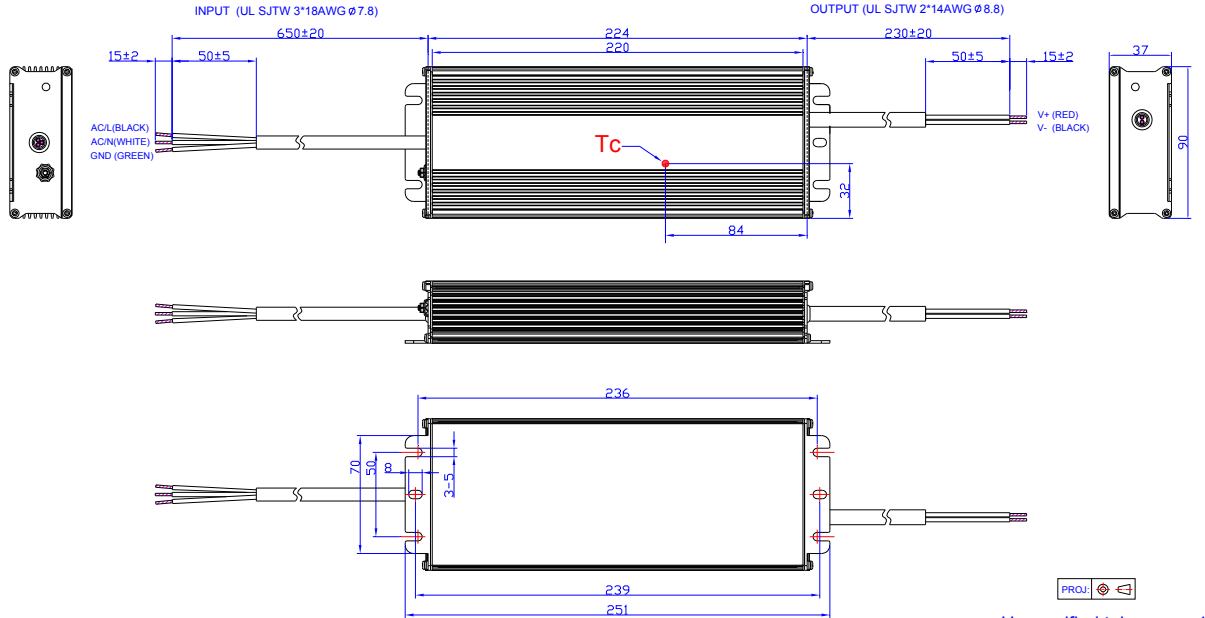
**Note:** The 3 DC output cables are connected in parallel internally because one AWG #18 wire can only carry 10A. Please connect the 3 red wires together and 3 black wires together in application, or ensure each cable carries same current.

### EUV-250S024/036ST

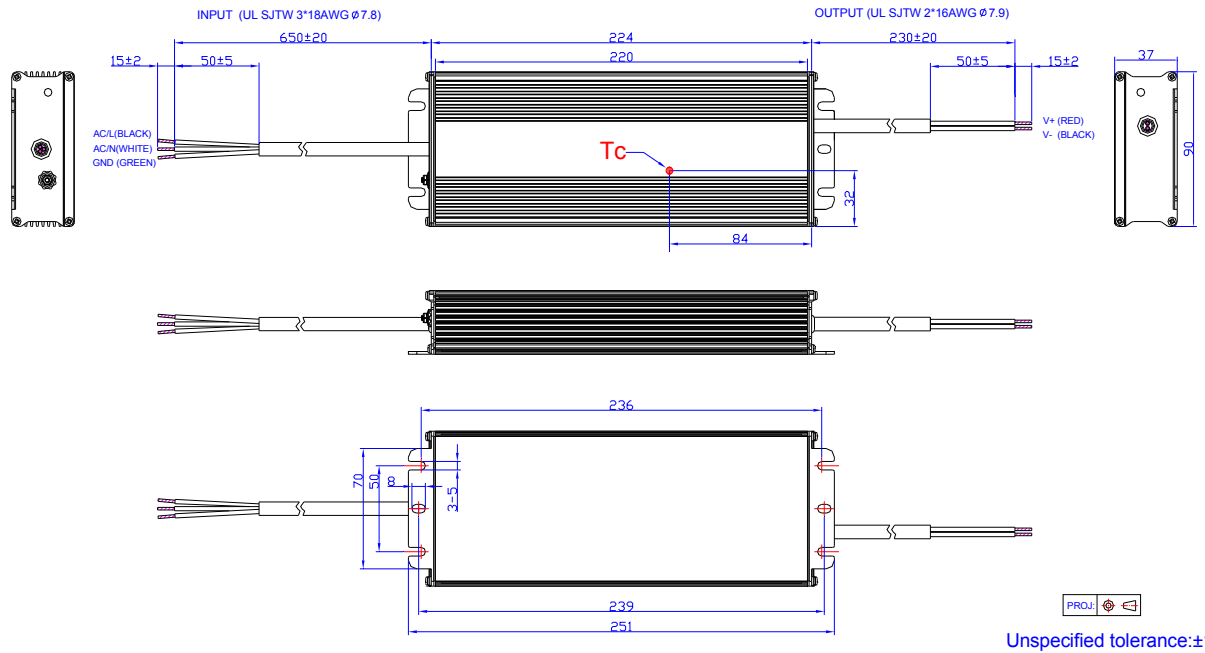


**Note:** The 2 DC output cables are connected in parallel internally because one AWG #18 wire can only carry 10A. Please connect the 2 red wires together and 2 black wires together in application, or ensure each cable carries same current.

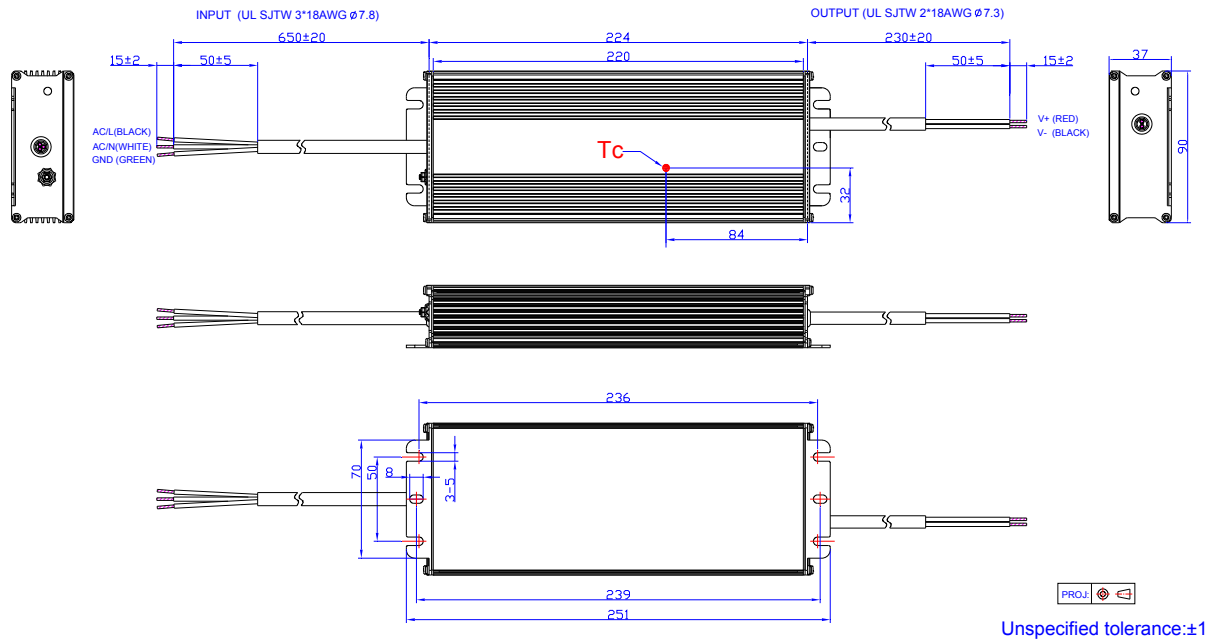
**EUV-250S028ST**



**EUV-250S042ST**



**EUV-250S048/054ST**



## 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
2010-03-11	A	Add a new model of 28V		
		Add Leakage Current in Input Specifications	/	Max. 0.75 Ma At 277Vac 50Hz input
		Standardize the tolerance in Mechanical Outline	/	/
2011-01-14	B	Change Input AC Current @220Vac	1.3 A	1.4 A
		Change the efficiency (120Vac)	Min. Typ. VO = 12 V 89.5% 90.0%	Min. Typ. 89.0% 89.5%
		VO = 84 V	92.0% 92.5%	91.0% 91.5%
		VO = 105 V	92.0% 92.5%	91.0% 91.5%
		VO = 150 V	92.0% 92.5%	91.0% 91.5%
Change the efficiency (220Vac)	Min. Typ. VO = 12 V 91.5% 92.0%	Min. Typ. 91.0% 91.5%		
Change No Load Power Dissipation	≤3 W	≤5 W		
Update MTBF & Life Time Data	For One Model	For Two Models		
2011-07-30	C	Update Life Time Data	Ta=45°C	Tc=80°C
2012-06-18	D	Mechanical Outline	/	Updated
		Vo=52V, 56V, 60V, 84V,105 V & 150V Models	/	Deleted
		Life time Curve	/	Added
		EN61000-4-5	line to line 2 kV, line to earth 4 kV	line to line 4 kV, line to earth 6 kV
2012-07-17	E	Max Case Temperature	/	Updated
2012-11-15	F	Efficiency of 24V,28V,36V,42V	/	0.5%,1.5% or 2% lower
		Operating Temperature	-35 °C	-40 °C
		Derating Curve	/	Updated
2013-02-26	G	Efficiency of 42V,48V,54V	/	0.5% lower
2013-03-11	H	Over Current Protection	110%,155%,180%	130%,165%,200%
2013-04-02	I	Inrush current	50A	150A
		Min PF and max THD	/	Added
		Temperature coefficient	/	Added
		Life time	/	Updated
		Life time curve	/	Updated
		Input AC current@100Vac	Max 2.8A	Typ2.8A, Max3.0A
		Turn-on delay time	0.1s,0.2s	0.2s,0.5s
Mechanical Outline---tolerance standardized	/	Corrected		
2013-12-13	J	Mechanical Outline—42V Model output wire	18AWG	16AWG



## Revision History (Continued)

Change Date	Rev.	Description of Change		
		Item	From	To
2013-12-13	J	Turn-on delay time	0.2s,0.5s	0.4s,1.0s
2015-09-10	K	Format	/	Updated
		External Grounding Screw Solution	/	/
		Features	/	Updated
		Description		Updated
		Models	Notes	Updated
		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	/	Deleted
		Safety & EMC Compliance	/	Updated
		Protection Functions	/	Updated
Dimming Control	/	Updated		
Mechanical Outline	/	Updated		
2017-06-30	L	Description	/	Updated
		Output Specifications	Temperature Coefficient	Updated
		General Specifications	Dimensions	Updated
		Safety & EMC Compliance	/	Updated
		Mechanical Outline	/	Updated
2019-09-19	M	KS Logo	/	Added
		Features	4kV line-line, 6kV line-earth	DM 4kV, CM 6kV
		Features	Waterproof(IP67)	IP67
		Features	5 Years Warranty	Added
		Input Specifications(Power Factor / THD)	50-60Hz	Added
		General Specifications	Operating Case Temperature for Warranty Tc_w- Notes	Added
		Safety & EMC Compliance	KS	Added
		Safety & EMC Compliance	EN 61000-4-5	Updated
		Derating Curve	/	Deleted
		RoHS Compliance	/	Updated