



# SOSEN LED Driver, Your Smart Choice

## Specifications

### SS-600VP Series LED Driver

Model: SS-600VP-XXX

Description: 600W LED Driver

Rev.: V00

Release Date: 2018-10-18

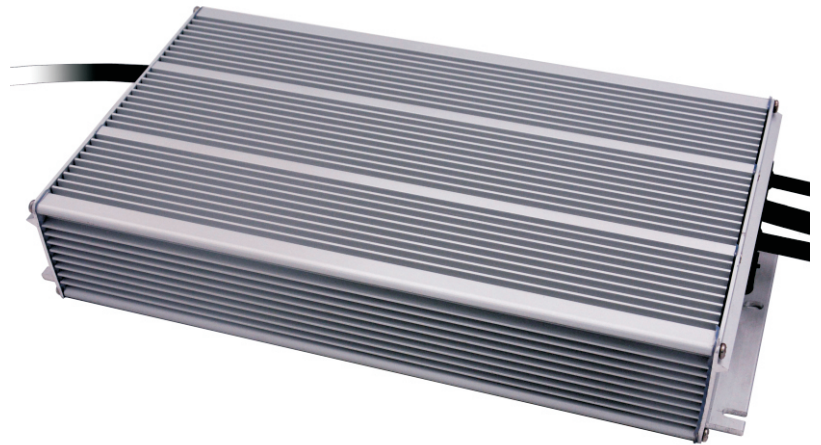
# SS-600VP Series LED Driver

**SOSEN**  
LED DRIVER



LED DRIVER

VP Series



## Features:

- Efficiency up to 96%
- Dimming: DALI, 0-10V, PWM, Timing
- Dim to Off
- Surge protection: L/N-PE: 10kV, L-N: 6kV
- Optional aux : 12V/0.4A, 24V/0.2A
- Constant lumen output
- PS-ON signal
- External NTC to protect LED module
- No load power < 0.5W
- IP67
- Communication function with PC
- TYPE HL, suitable for hazard locations
- Protections: SCP/OTP/OVP
- Warranty: 7 years



**IP67 Class P**

## Description:

SS-600VP series are constant current driver for outdoor LED . With wide operating windows and current adjustability. LED luminaries manufactures can easily to design luminaries and reduce luminaries manufactures cost.

### Application:

High bay light, stadium light, plant light

## Model List:

Model	AC Input Range	Max. Pout	Vout Range	Full Power Working Voltage	Iout	THD(Typ.)	PF(Typ.)	Eff.(Typ.)	Max.Tc
SS-600VP-56*	90-305Vac	600W	22-56V	48-56V	1.25-12.5A	15%	0.95	95%	90°C
SS-600VP-215*	90-305Vac	600W	85-215V	143-215V	0.5-4.2A	15%	0.95	95%	90°C
SS-600VP-428*	90-305Vac	600W	170-428V	286-428V	0.35-2.1A	15%	0.95	95%	90°C

# SS-600VP Series LED Driver

“\*” Means Additional Function

“*”	DALI (suffix:D)	AUX 12V ( suffix:H)	AUX 24V ( suffix:J)	NTC ( suffix:N)	0-10V/PWM Dim /Timing (suffix:B)	Remark
BH		✓			✓	
BJ			✓		✓	
BHN		✓		✓	✓	
BJN			✓	✓	✓	
DJ	✓		✓			
DJN	✓		✓	✓		

## Input Characteristics:

Parameter	Min.	Typ.	Max.	Remark
Rated AC Input Range	100Vac		277Vac	
AC Input Range	90 Vac		305Vac	
Input Frequency Range	47Hz	50/60Hz	63Hz	
Max Input Current			6.6A	100Vac, full load
Max Input Power			655W	100Vac, full load
Max Input Current(120Vac)			30A	Cold Start
Max Input Current(220Vac)			55A	Cold Start
Max Input Current(277Vac)			70A	Cold Start
No Load Power			0.5W	220Vac/50Hz, no load
Power Factor	0.90	0.95		220Vac/50Hz, full load
	0.90			277Vac, 70% load
THD		12%	15%	220Vac/50Hz, full load
			20%	277Vac, 70% load

# SS-600VP Series LED Driver

## Output Characteristics(SS-600VP-56\*):

Parameter	Min.	Typ.	Max.	Remark
Output Voltage Range	22V		56V	Power Derated @22-48V
Rated Output Voltage	48V		56V	$P_o=V_o \cdot I_o=600W$ , full load
Rated Output Current	10.7A		12.5A	12.5A for 48V, 10.7A for 56V
Current Adjustable Range(AOC)	0.7A		12.5A	By Programming
No Load Voltage			60V	
Efficiency @120Vac	90.5%	92.0%		Output 56V/10.7A
Efficiency @220Vac	93.5%	95.0%		Output 56V/10.7A
Efficiency @277Vac	94.5%	96.0%		Output 56V/10.7A
Output Current Tolerance	-5%		+5%	
Output Current Ripple(PK-AV)		5%	10%	
Start-up Current Overshoot			10%	Full load
Start-up Time			0.5S	120Vac
			0.5S	220Vac
Line Regulation	-2%		+2%	Full load
Load Regulation	-2%		+2%	
Temperature Coefficient	-0.03%/°C		+0.03%/°C	Tc:0°C~90°C
OTP	90°C	100°C	110°C	Tc, Self-recovery, o/p power decreases when the Tc increases.
Short Circuit Protection/OCP			≤15W	Driver will not be damaged, Hiccup mode

# SS-600VP Series LED Driver

## Output Characteristics(SS-600VP-215\*):

Parameter	Min.	Typ.	Max.	Remark
Output Voltage Range	85V		215V	Power Derated @85-143V
Rated Output Voltage	143V		215V	$P_o=V_o \cdot I_o=600W$ , full load
Rated Output Current	2.8A		4.2A	4.2A for 143V,2.8A for 215V
Current Adjustable Range(AOC)	0.5A		4.2A	By Programming
No Load Voltage			250V	
Efficiency @120Vac	91.0%	92.0%		Output 170V/3.5A
Efficiency @220Vac	93.0%	95.0%		Output 170V/3.5A
Efficiency @277Vac	93.0%	95.0%		Output 170V/3.5A
Output Current Tolerance	-5%		+5%	
Output Current Ripple(PK-AV)		5%	10%	
Start-up Current Overshoot			10%	Full load
Start-up Time			0.5S	120Vac
			0.5S	220Vac
Line Regulation	-2%		+2%	Full load
Load Regulation	-2%		+2%	
Temperature Coefficient	-0.03%/°C		+0.03%/°C	Tc:0°C~90°C
OTP	90°C	100°C	110°C	Tc, Self-recovery, o/p power decreases when the Tc increases.
Short Circuit Protection/OCP			≤15W	Driver will not be damaged, Hiccup mode

# SS-600VP Series LED Driver

## Output Characteristics(SS-600VP-428\*):

Parameter	Min.	Typ.	Max.	Remark
Output Voltage Range	170V		428V	Power Derated @170-286V
Rated Output Voltage	286V		428V	$P_o=V_o \cdot I_o=600W$ , full load
Rated Output Current	1.4A		2.1A	2.1A for 286V, 1.4A for 428V
Current Adjustable Range(AOC)	0.35A		2.1A	By Programming
No Load Voltage			450V	
Efficiency @120Vac	90.5%	92.0%		Output 343V/1.75A
Efficiency @220Vac	93.0%	95.0%		Output 343V/1.75A
Efficiency @277Vac	93.0%	95.0%		Output 343V/1.75A
Output Current Tolerance	-5%		+5%	
Output Current Ripple(PK-AV)		5%	10%	
Start-up Current Overshoot			10%	Full load
Start-up Time			0.5S	120Vac
			0.5S	220Vac
Line Regulation	-2%		+2%	Full load
Load Regulation	-2%		+2%	
Temperature Coefficient	-0.03%/°C		+0.03%/°C	Tc:0°C~90°C
OTP	90°C	100°C	110°C	Tc, Self-recovery, o/p power decreases when the Tc increases.
Short Circuit Protection/OCP			≤15W	Driver will not be damaged, Hiccup mode

# SS-600VP Series LED Driver

## Other Characteristics:

Parameter	Min.	Typ.	Max.	Remark	
Aux Power (Optional)	12V	11.76V	12V	12.24V	
	12V	0mA		400mA	
	24V	23.6V	24V	24.6V	
	24V	0mA		200mA	
0-10V Dimming (Optional)	Dim Vmax	0V		12V	Negative dimming by programming
	Dim Range	10% I <sub>omax</sub>		100% I <sub>oSet</sub>	
	Rec. Dim Range	1V		10V	
PWM Dimming (Optional)	PWM High	9.8V		10.2V	Negative dimming by programming
	PWM Low	0V		0.3V	
	Frequency	1KHz		2KHz	
	PWM Duty	10%		100%	
Resistor Dimming (Optional)	Resistance	NC		NC	
	Dim Range	NC		NC	
Dim to Off (Optional)	Dim-off	0.3V	0.5V	0.7V	
	Dim Turn on	0.5V	0.7V	0.9V	
Timing Curve (Optional)	By programming			Typically 3-4 sections	
Life Time (T <sub>c</sub> ≤ 65°C)	100,000 hours				
Life Time (T <sub>c</sub> ≤ 75°C)	62,000 hours				
MTBF	198,000 hours			220Vac, full load, T <sub>a</sub> = 25°C (MIL-HDBK-217F)	
IP Grade	IP67				
T <sub>c</sub>	90°C				
Warranty	7 years			T <sub>c</sub> : 75°C	
Net Weight	3700g				
Dimension	280mm*144mm*49.5mm 11.02in*5.67in*19.5in			L x W x H	

NOTE: All the parameters above are tested T<sub>a</sub> 25°C, unless specified.

# SS-600VP Series LED Driver

## Environmental Requirements

Parameter	Min.	Typ.	Max.	Remark
Operating Temperature(Tcase)	-40°C	25°C	+90°C	
Storage Temperature	-40°C	25°C	+85°C	
Operation Humidity	10%RH		90%RH	
Storage Humidity	5%RH		95%RH	
Altitude	-65m		4000m	

## Safety and EMI/EMS Standards

Certification	Standard	Status	Remark
UL/CUL	UL8750	✓	
ENEC/TUV	EN 61347-2-13:2014 EN61347-1:2008+A1:2011+A2:2013 EN62493:2015		
RCM	AS/NZS61347.2.13		
CCC	GB 19510.14-2009		
CE	EN 61347-2-13:2014 EN61347-1:2008+A1:2011+A2:2013	✓	
KC	K61347-1,K61347-2-13		

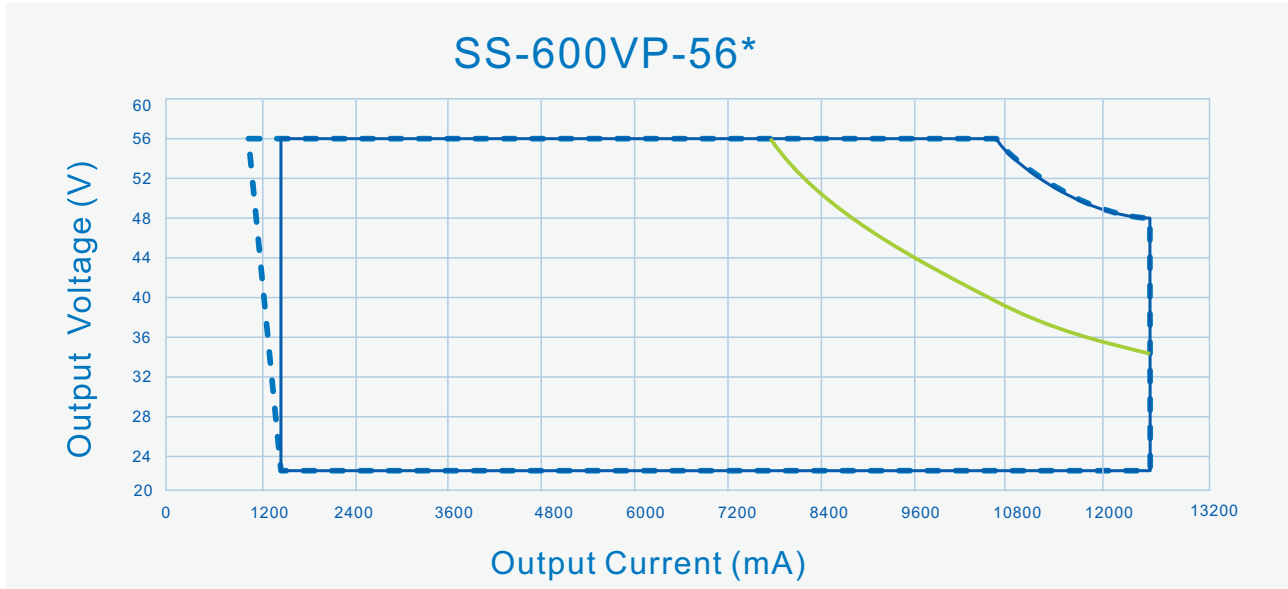
EMI/EMS	Criterion	Remark
Conduction Emission	EN55015:2013+A1:2015	
Radiation Emission	EN55015:2013+A1:2015	
Harmonic Current Emissions	IEC/EN 61000-3-2	ClassC
Surge	IEC/EN61000-4-5	Difference mode 6kV, Common mode 10kV,Criterion B
Ring Wave	IEC/EN 61000-4-12	Difference mode 6kV, Common mode 6kV,Criterion B



# SS-600VP Series LED Driver

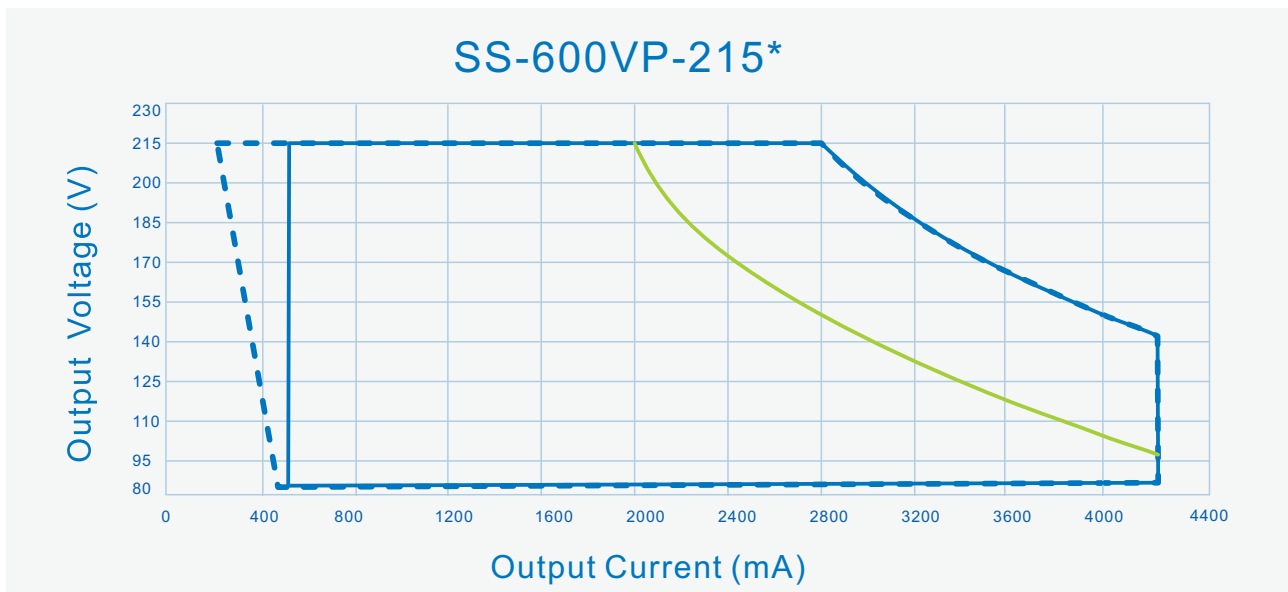
## Performance Curves:

Output Voltage Vs. Output Current(DIM/AOC Window)



-- DIM Window      — AOC Window      — Performance Window(PF>0.9, THD<20% at 277Vac)

Output Voltage Vs. Output Current(DIM/AOC Window)

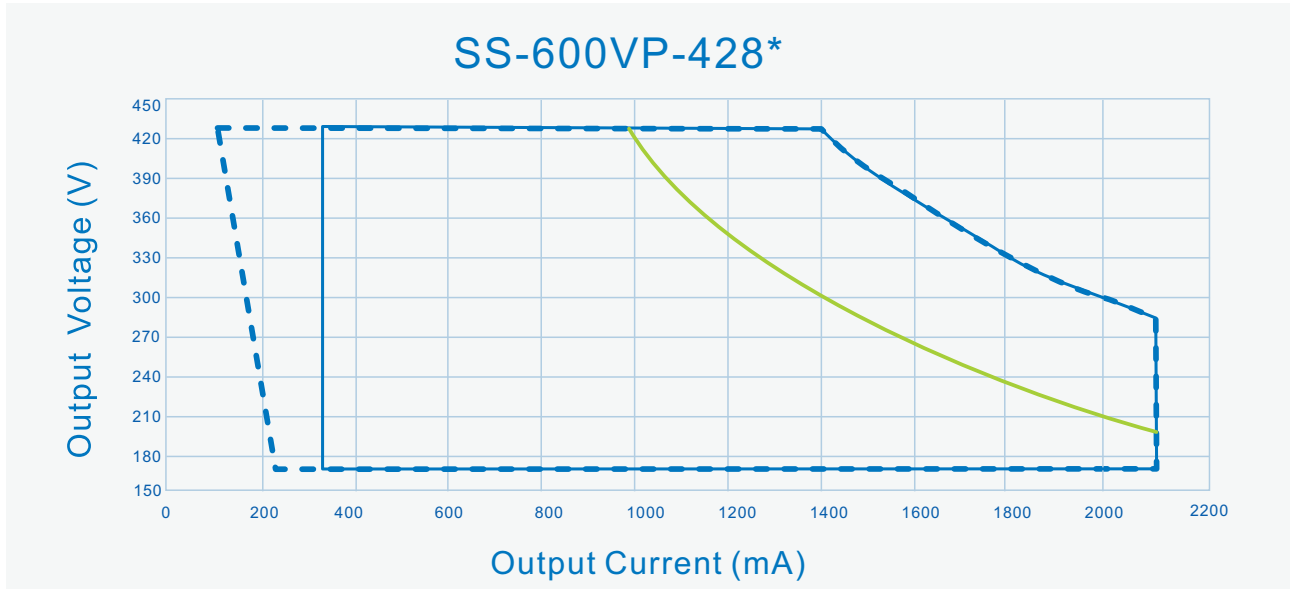


-- DIM Window      — AOC Window      — Performance Window(PF>0.9, THD<20% at 277Vac)

# SS-600VP Series LED Driver

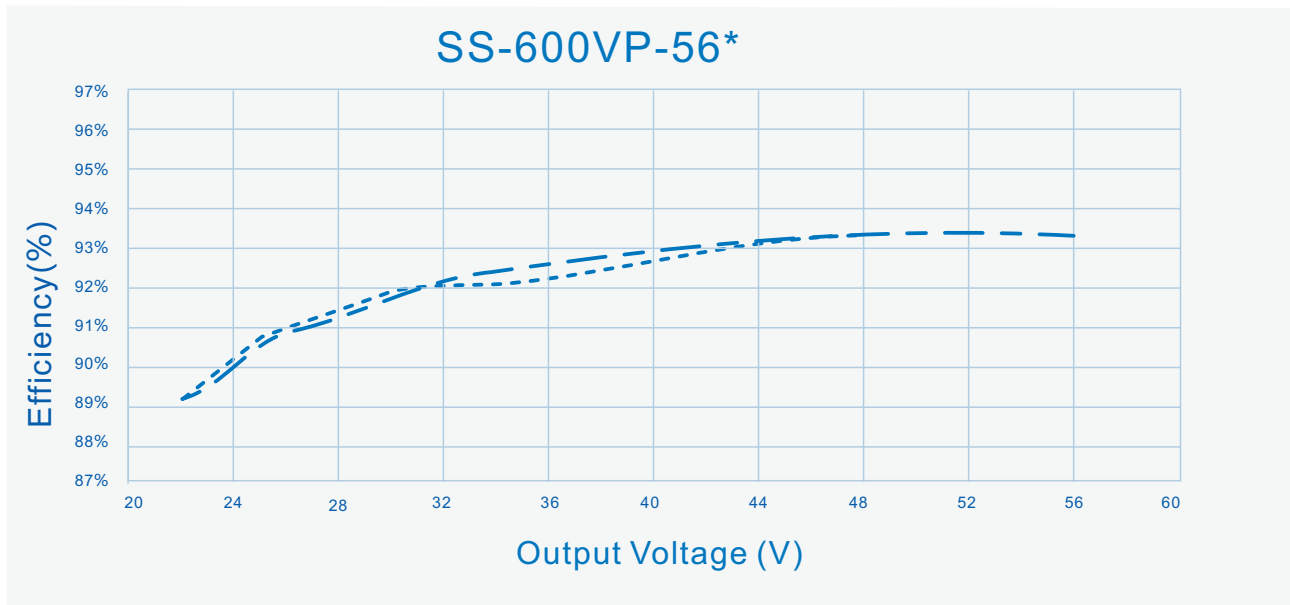
## Performance Curves:

Output Voltage Vs. Output Current(DIM/AOC Window)



-- DIM Window      — AOC Window      — Performance Window(PF>0.9, THD<20% at 277Vac)

Efficiency Vs. Output Voltage (Vin=120Vac)



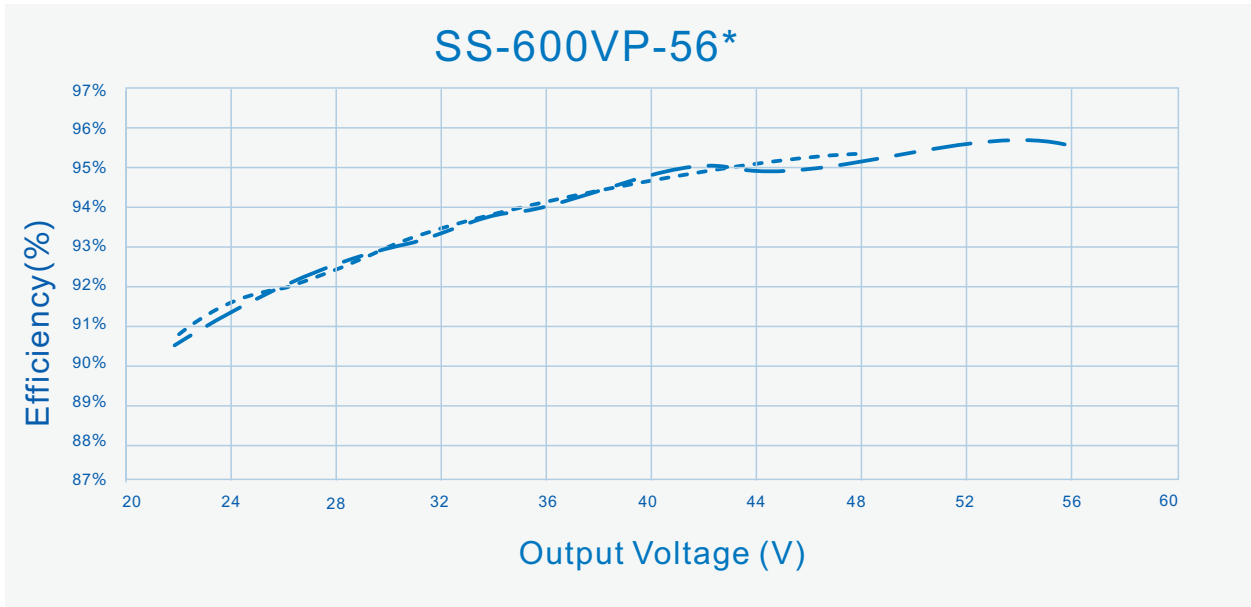
----- Io=12500mA

- - - - - Io=10700mA

# SS-600VP Series LED Driver

## Performance Curves:

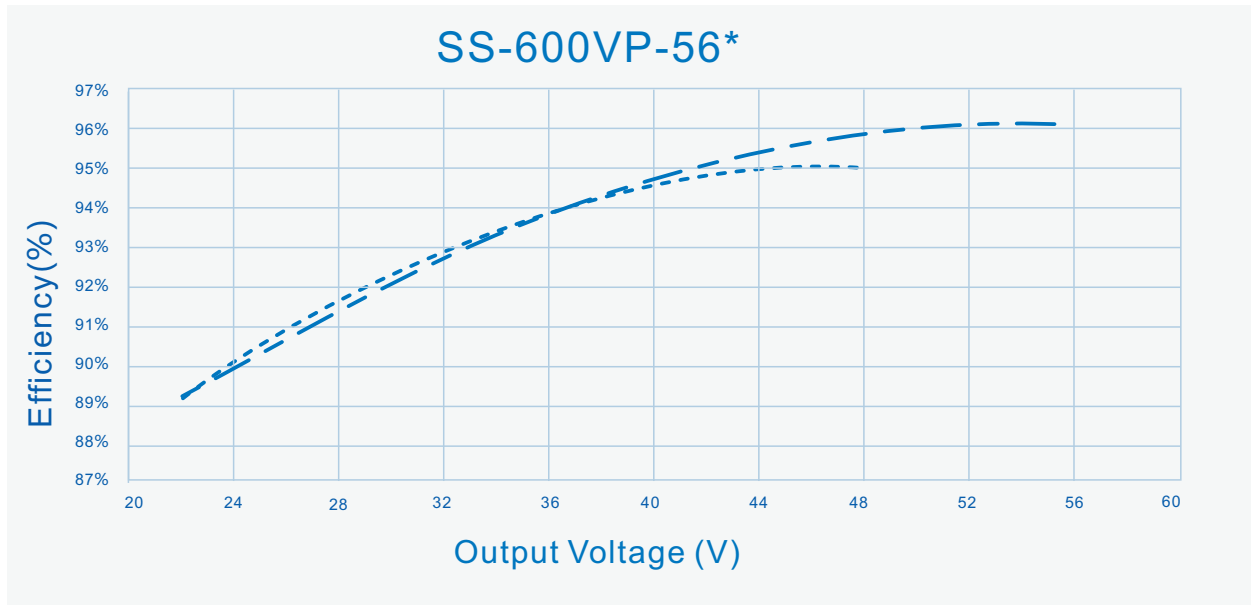
Efficiency Vs. Output Voltage ( $V_{in}=220V_{ac}$ )



-----  $I_o=12500mA$

- . - .  $I_o=10700mA$

Efficiency Vs. Output Voltage ( $V_{in}=277V_{ac}$ )



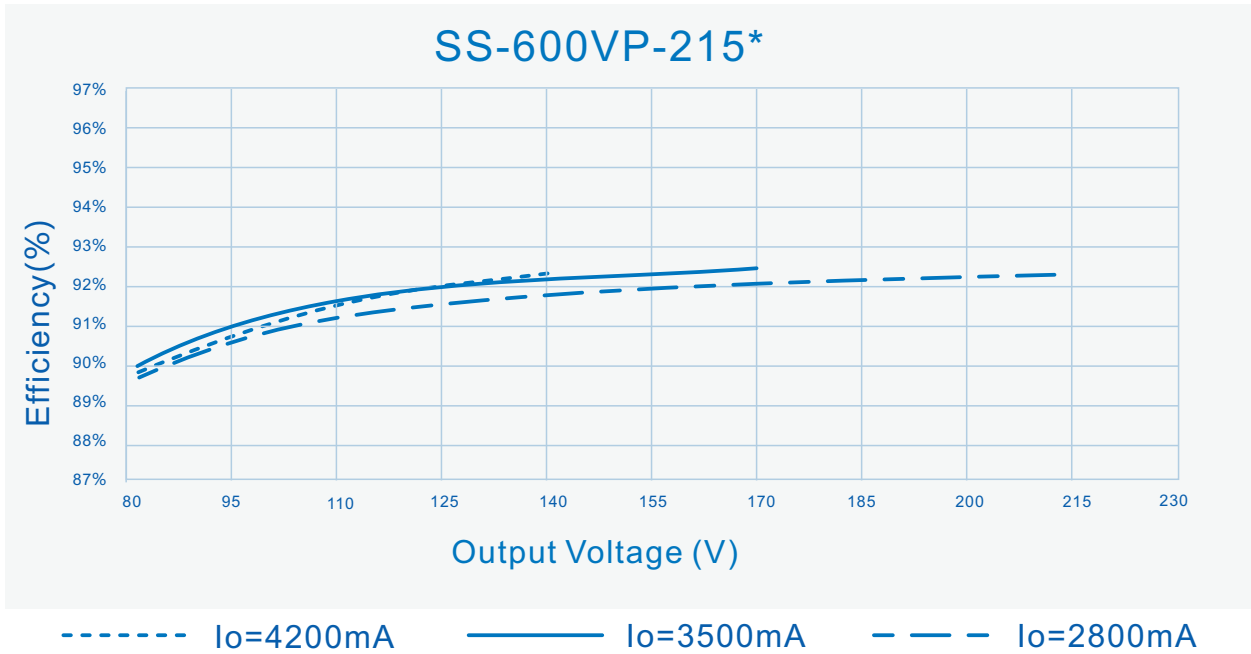
-----  $I_o=12500mA$

- . - .  $I_o=10700mA$

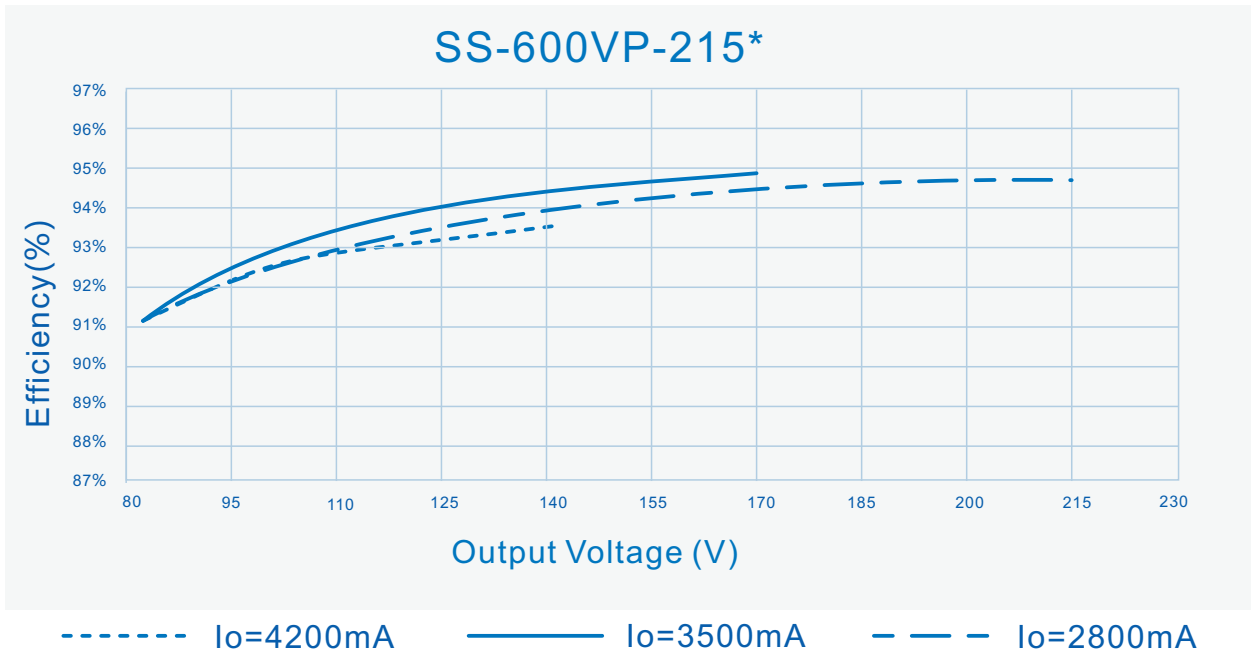
# SS-600VP Series LED Driver

## Performance Curves:

Efficiency Vs. Output Voltage ( $V_{in}=120Vac$ )



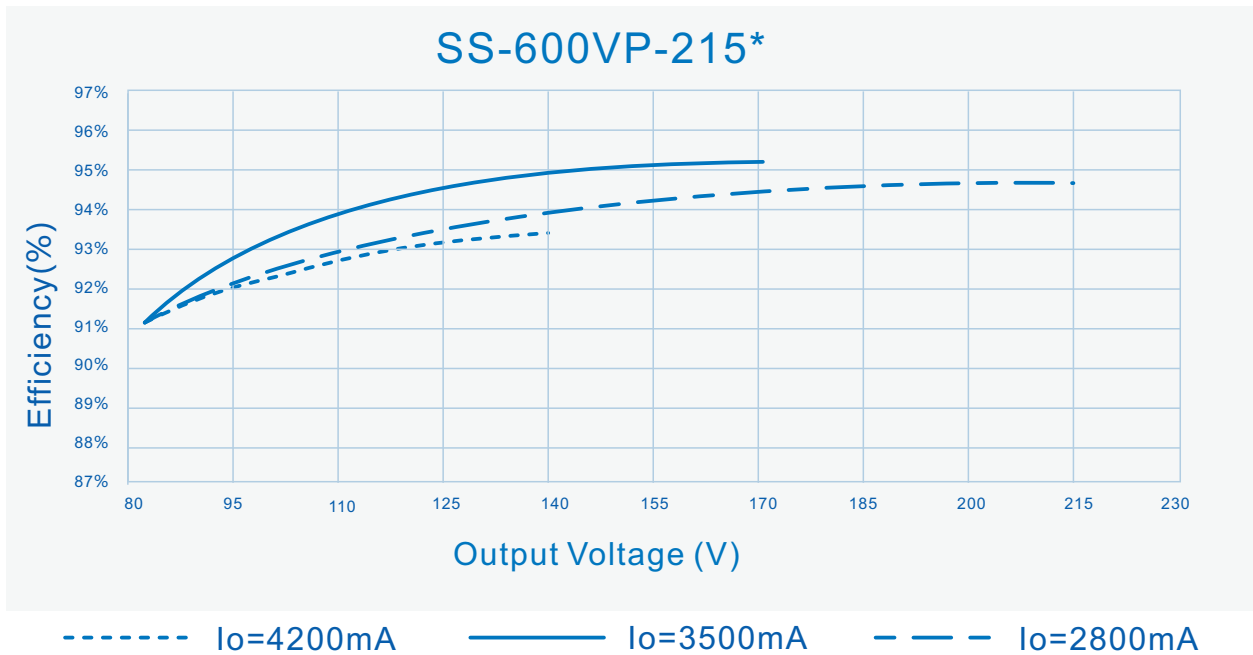
Efficiency Vs. Output Voltage ( $V_{in}=220Vac$ )



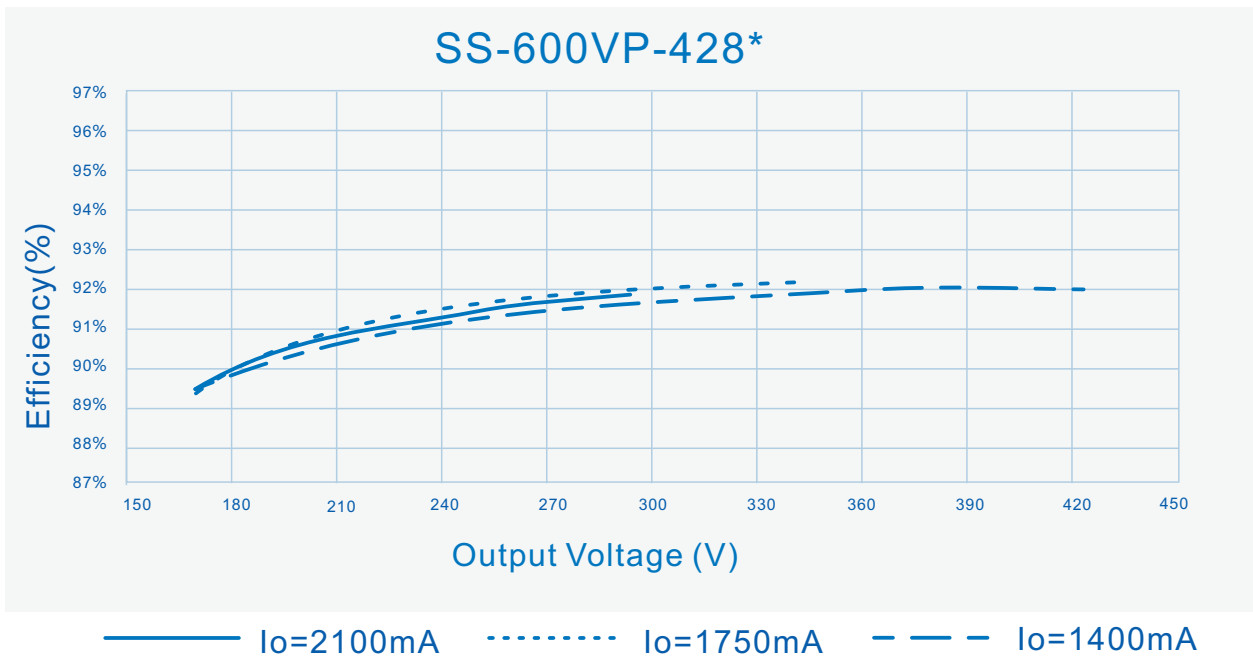
# SS-600VP Series LED Driver

## Performance Curves:

Efficiency Vs. Output Voltage ( $V_{in}=277V_{ac}$ )



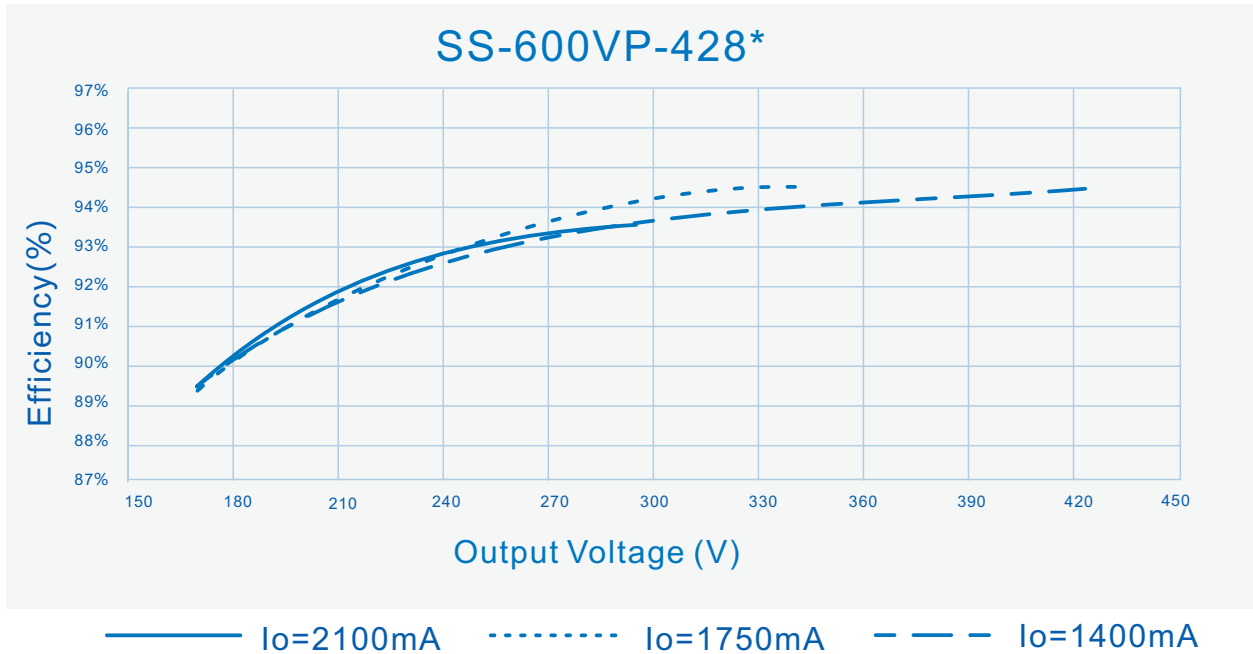
Efficiency Vs. Output Voltage ( $V_{in}=120V_{ac}$ )



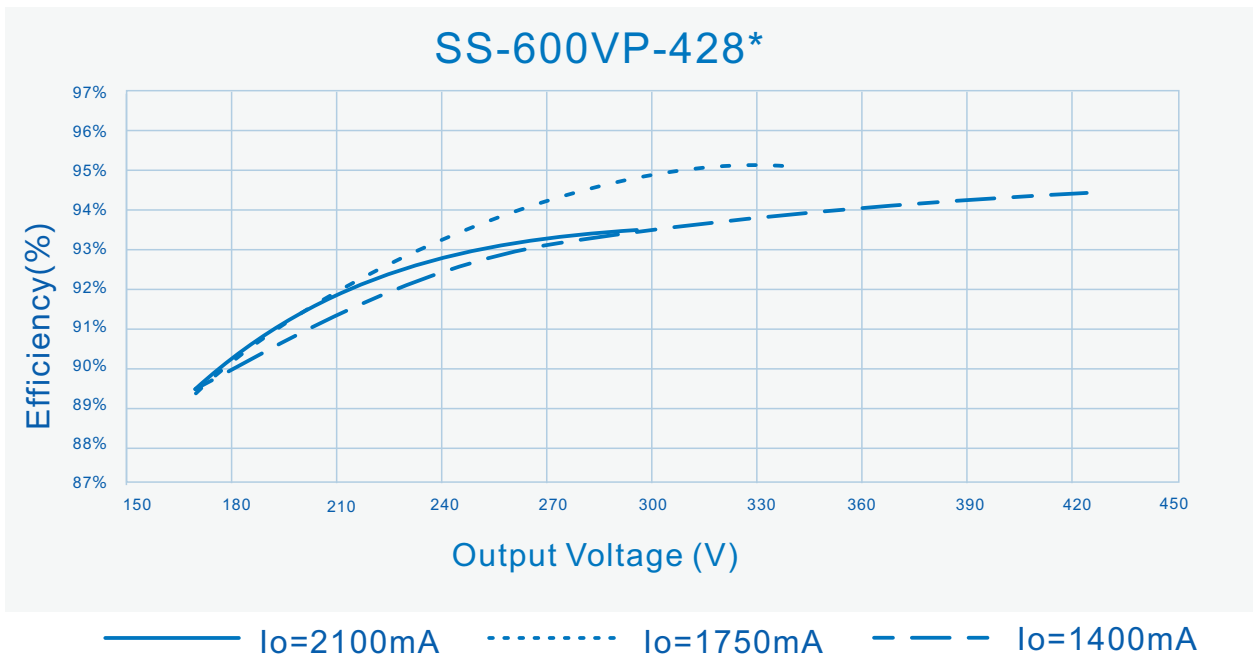
# SS-600VP Series LED Driver

## Performance Curves:

Efficiency Vs. Output Voltage ( $V_{in}=220V_{ac}$ )



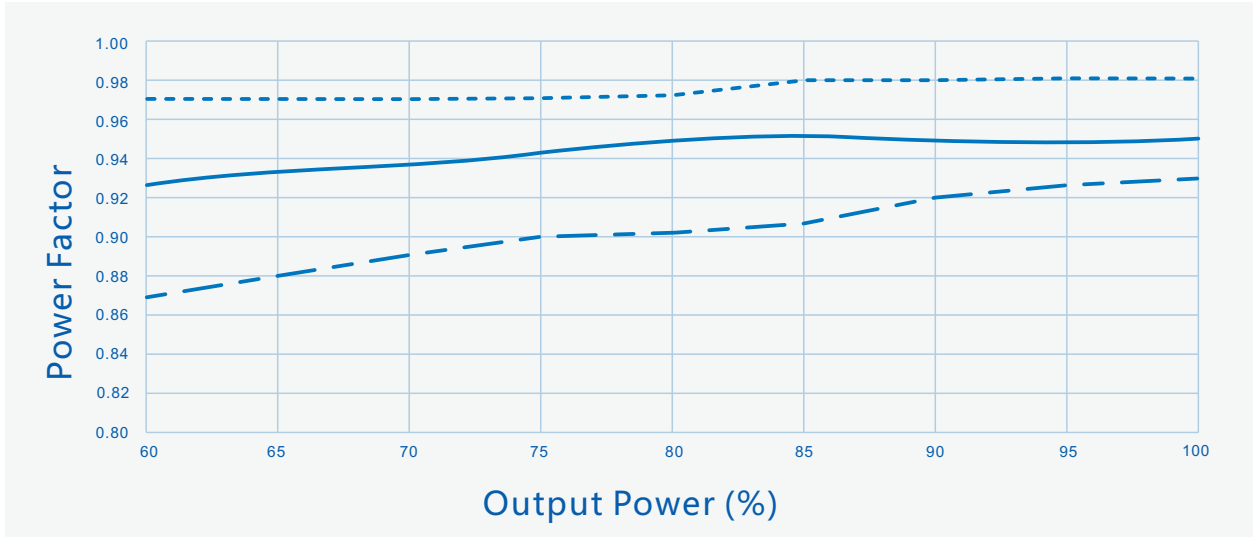
Efficiency Vs. Output Voltage ( $V_{in}=277V_{ac}$ )



# SS-600VP Series LED Driver

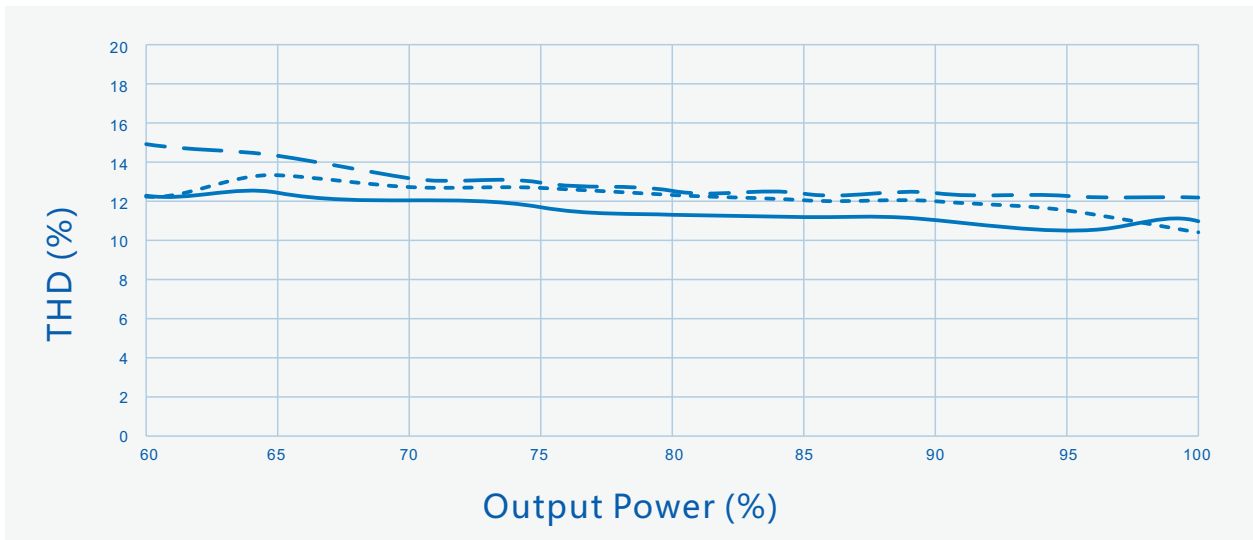
## Performance Curves:

### Power Factor Vs. Output Power



----- Vin=120Vac      ——— Vin=220Vac      - · - · Vin=277Vac

### THD Vs. Output Power

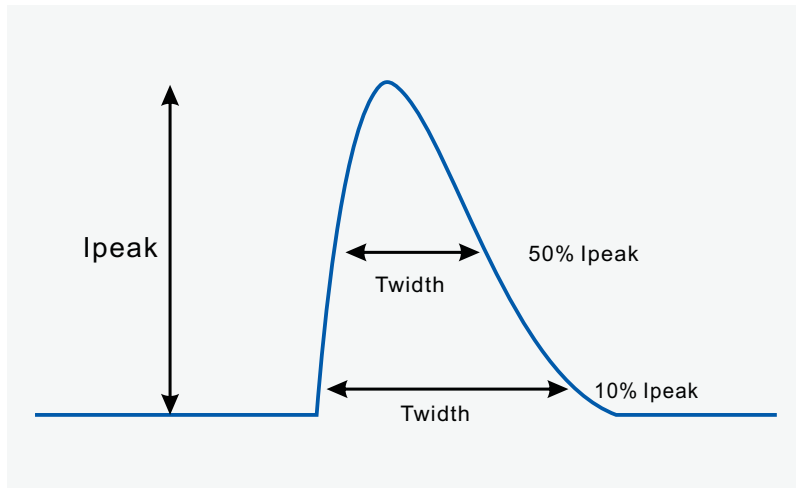


----- Vin=120Vac      ——— Vin=220Vac      - · - · Vin=277Vac

# SS-600VP Series LED Driver

## Performance Curves:

### Input inrush Current



Vin	Ipeak	T(@10% of Ipeak)	T(@50% of Ipeak)
120Vac	30A	120uS	
220Vac	55A		150uS
277Vac	70A	220uS	

## Safety Test Items:

Safety test items	Technical Indicators	Remark
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Insulation Requirements	UL Insulation Requirements	TUV Insulation Requirements	CCC Insulation Requirements	
Input-Output	2U+1000	4U+2000	4U+2750	TBD
Input-Case	2U+1000	2U+1000	2U+1000	Basic insulation
Input-Dim	2U+1000	4U+2000	4U+2750	Reinforced insulation
Output-Dim	2U+1000	2U+1000	2U+1750	Additional insulation
Output-Case	2U+1000	2U+1000	2U+1000	Function insulation
Dim-Case	2U+1000	2U+1000	2U+1000	
Insulation Resistance	≥10MΩ			Input-Output, Test voltage:500Vdc
Ground Resistance	≤0.1Ω			25A/1min
Leakage Current	≤0.75mA			277Vac

### NOTE:

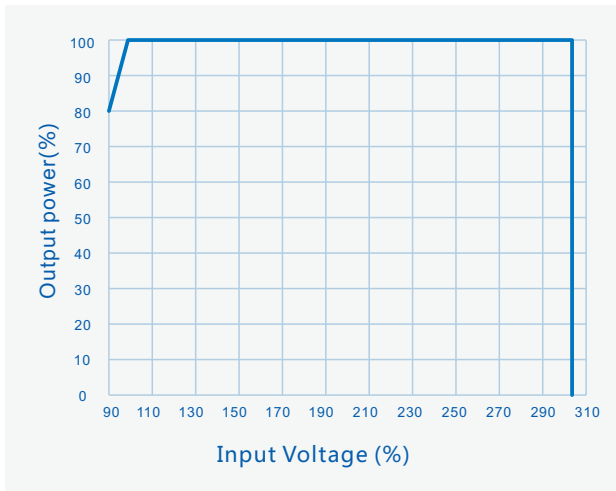
1. SOSEN warrants the LED Driver itself complies with EMC standard. However, LED Driver's EMC should be re-checked when integrated into lighting systems due to unexpected interference as component.
2. Please short Line and Neutral, LED+ and LED-, Dim+ and Dim - when Hi-pot test.
3. U: Max Input voltage .



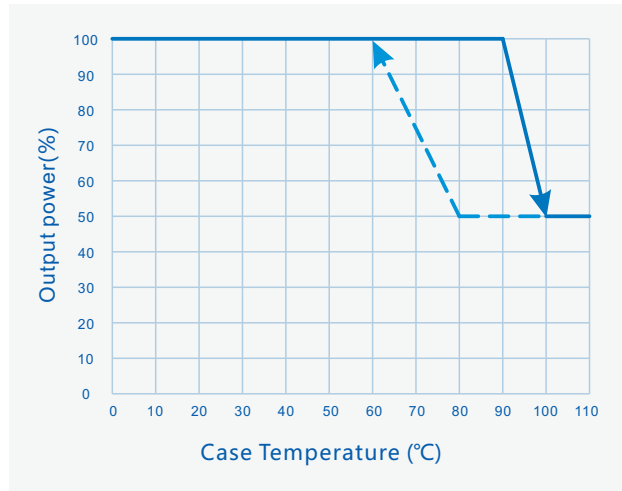
# SS-600VP Series LED Driver

## Performance Curves:

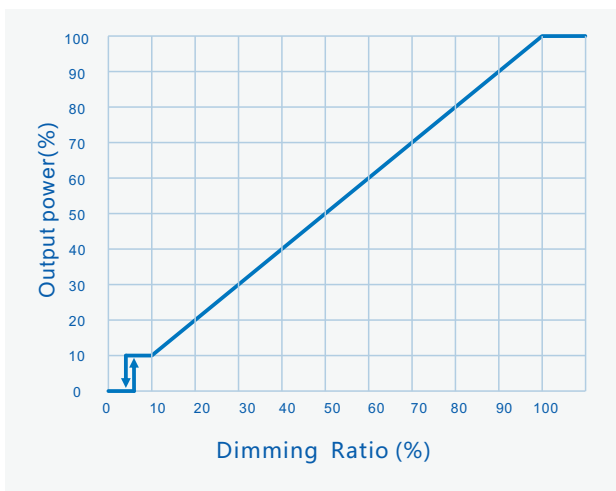
### Output Power Vs. Input Voltage



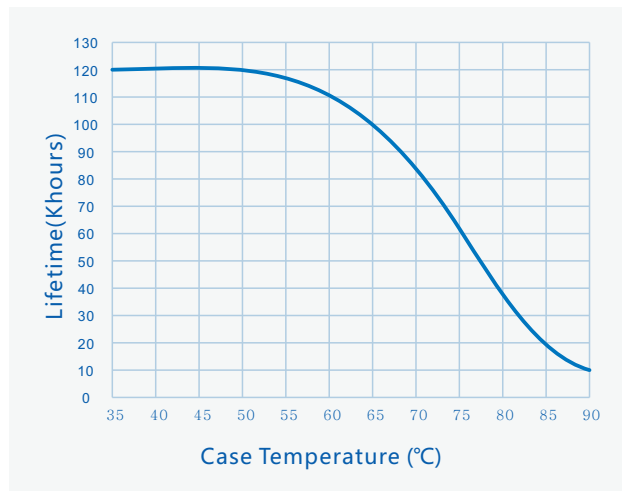
### Output Power Vs. Case Temperature



### Output Power Vs. Dimming



### Life Time Vs. Case Temperature



# SS-600VP Series LED Driver

## Constant Lumen Output

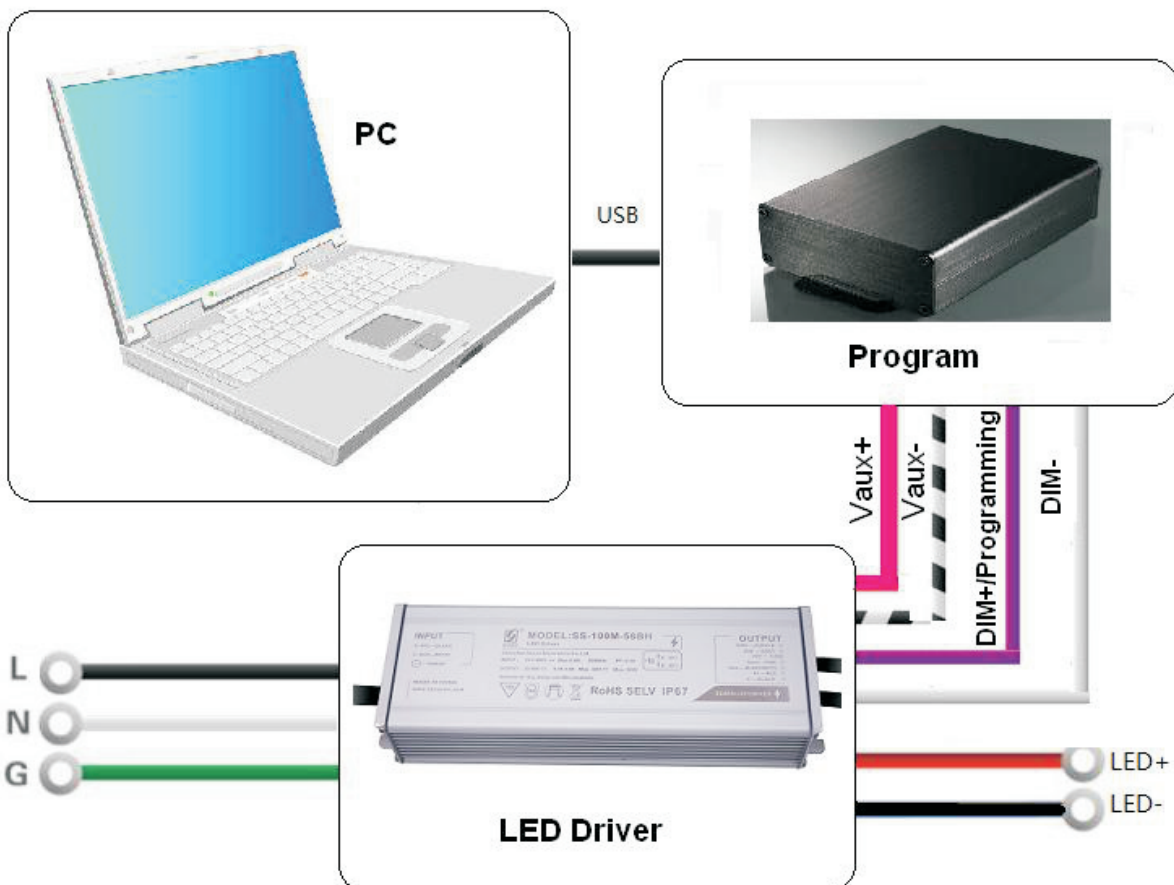
Constant Lumen Output are design to maintain fixture's stable output lumen by increasing driver's output current within driver's life span to counteract LED lumen degradation.

## Programming connection diagram :

Legacy Timer: Driver's output follows the pre-programmed timing curve after turn-on.

Auto-Adjust by Percentage: Driver's output will be adjusted by automatically changed dimming curve by the period percentage based on the latest 5 dimming curve.

Auto-Adjust by Mid-point: Driver's output will be adjusted by automatically changed dimming curve by mid-point based on the latest 5 dimming curve.



### Note:

Programming could be completed by off-line mode either without turn on the driver nor without PC, other than the traditional on-line mode.

# SS-600VP Series LED Driver

## Mechanical Characteristics(Unit: mm/inch)

**LED DRIVER**

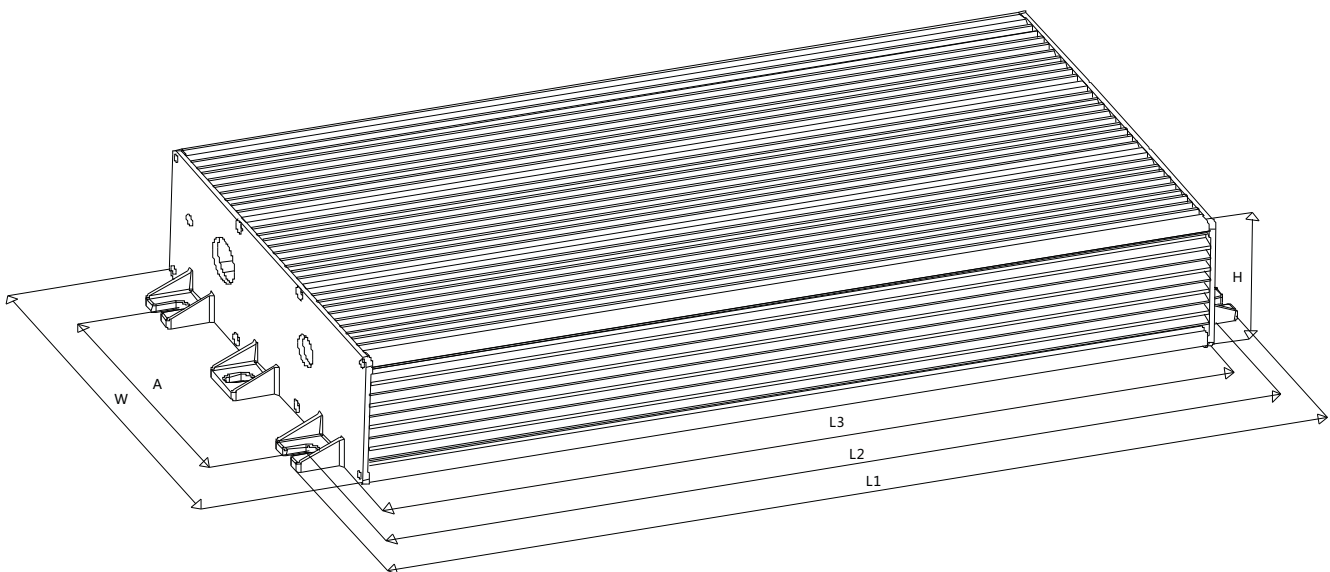
**AC Input Cable(Lead Length outside enclosure 250±10mm):**  
 UL model: SJTW,3\*1.32mm<sup>2</sup>,O.D: 9.0mm,Black:L,White:N,Green:PE  
 Euro model: H05RN-F,3\*1.5mm<sup>2</sup>, ,O.D:9.0mm,Brown:L, Blue:N, Yellow/Green:PE

**DC Output Cable(Lead Length outside enclosure 250±10mm):**  
 UL model: SJTW,2\*2.08mm<sup>2</sup>,O.D: 9.0mm,Red:LED+ , Black:LED-  
 Euro model: H05RN-F,2\*2.0mm<sup>2</sup> , O.D:9.0mm, Brown:V+, Blue:V-

**DIM+AUX Power Cable(Lead Length outside enclosure 220±10mm):**  
 UL/Euro model: SJTW,2\*0.824mm<sup>2</sup> , O.D: 6.0mm , Purple : DIM+, Gray: DIM-,  
 Pink:AUX+,B/W:AXU-

**NTC Cable(Lead Length outside enclosure 220±10mm):**  
 UL/Euro model: SJTW,2\*0.75mm<sup>2</sup> , O.D: 6.0mm , Brown : NTC+, Blue: NTC-

Name Description	Standard Code	mm(In.)
Case Length	L3	250(9.84)
Case Width	W	144(5.67)
Case Height	H	49.5(1.95)
Overall Length	L1	280(11.00)
Mounting Hole Length	L2	266(10.47)
Mounting Hole Width	A	97(3.82)



# SS-600VP Series LED Driver



## Installation Tips

1. Highly recommended to seal the adjustable hole with silicon glue(#704 preferred) after adjusting the driver's output current. Torsion with proper strength to avoid permanent damage to the potentiometer inside.
2. Dimming leads should be capped if not in use to avoid dimming circuit damage caused by external signals.

## Package

- Outside carton dimension: L×W×H =500mm×390mm×170mm;
- 3PCS/Carton;
- Net weight/PC: 3.7kg;Gross weight/Carton: 13.4kg;
- Please refer to the product name, model number, manufacturer identification, quality inspection certificate, manufacturing date Etc. on the package. and LED power supply instruction manual in the package.

## Transportation

Packaging is designed suitable for transportation by trucks, vessels and flights. The products should be shielded from direct sunshine, loaded/unloaded with caution.

## Storage

The product storage meets the standard of the GB 3873 - 83.  
Products should be rechecked if stock for over 1 year before installation.

## RoHS

Products comply with European directive 2011/65/EC.

## REVISION HISTORY

Version	Description of Change	Changed Date	Remark
V00	Original release	2018/10/18	