

SOSEN LED Driver, Your Smart Choice

Specifications

SS-600M Series LED Driver

Model: SS-600M-XXX

Description: 600W LED Driver

Rev.: V09

Release Date: 2023-04-25

SS-600M Series LED Driver

SOSEN
LED DRIVER



LED DRIVER

M Series



Features:

- Efficiency up to 95.5%
- Dimming: 0-10V,PWM,Resistor,Timing
- Dim-to-Off
- Surge protection: CM: 10kV, DM: 6kV
- AUX Power : 12V/0.3A
- Constant Lumen O/P
- Standby Power<1.5W
- IP67
- Communication function with PC
- Type HL, suitable for hazardous locations
- Protections: SCP/OTP/UVP
- Warranty: 5 years



IP67 Class P

Description:

SS-600M series are 600W constant current LED Driver with 200-528Vac input and wide O/P voltage range and adjustable O/P current by program. LED luminaries manufactures can easily design luminaries and reduce cost.

Applications:

High bay lighting, Stadium lighting, Square lighting, Plant lighting, Fish lighting, Harbor lighting

Model List:

Model	AC Input Range	Max. Pout	Vout Range	Full Power Vo Range	Iout	THD(Typ.)	PF(Typ.)	Eff.(Typ.)	Max.Tc
SS-600M-56BH	200-528Vac	600W	22-56V	48-56V	1.25-12.5A	8%	0.98	95.5%	90°C
SS-600M-190BH	200-528Vac	600W	95-190V	143-190V	0.7-4.2A	8%	0.98	95.5%	90°C
SS-600M-286BH	200-528Vac	600W	143-286V	215-286V	0.35-2.8A	8%	0.98	95.5%	90°C
SS-600M-428BH	200-528Vac	600W	214-428V	343-428V	0.35-1.75A	8%	0.98	95.5%	90°C

Note:

- 1.Default Tested: at 347Vac, full load, Ta 25°C;
2. The performance of the LED Driver can be guaranteed within the full power Vo range. The voltage lower than full power Vo range, it is need to test the performance with the LED module ;

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SS-600M Series LED Driver

"*" Means Additional Function

"*"	DALI (suffix:D)	AUX 12V (suffix:H)	NTC (suffix:N)	Timing	0-10V/PWM Dim /Resistor (suffix:B)	Remark
BH		✓		✓	✓	

Input Characteristics:

Parameter	Min.	Typ.	Max.	Remark
Rated AC Input Range	220Vac		480Vac	
AC Input Range	200Vac		528Vac	
Input Frequency Range	47Hz	50/60Hz	63Hz	
Max Input Current			3.6A	200Vac, Full load
Max Input Power			665W	200Vac, Full load
Max Inrush Current(277Vac)			30A	Cold start
Max Inrush Current(347Vac)			40A	Cold start
Max Inrush Current(480Vac)			55A	Cold start
Standby Power			1.5W	347Vac/60Hz, Dim-off
Power Factor	0.95	0.98		347Vac/60Hz, Full load
	0.90			277-480Vac, 70-100% load
THD		8%	10%	347Vac/60Hz, Full load
			20%	277-480Vac, 70-100% load

SS-600M Series LED Driver

O/P Characteristics(SS-600M-56BH):

Parameter	Min.	Typ.	Max.	Remark
O/P Voltage Range	22V		56V	Power derated @22-48V
Rated O/P Voltage	48V		56V	$P_o = V_o \cdot I_o = 600W$, Full load
Rated O/P Current	10.7A		12.5A	12.5A for 48V, 10.7A for 56V
Adj. O/P Current (AOC) Range	1.25A		12.5A	Adjustable by program
No Load Voltage			60V	
Efficiency @277Vac	92.5%	94.5%		O/P 56V/10.7A
Efficiency @347Vac	93.0%	95.0%		O/P 56V/10.7A
Efficiency @480Vac	93.4%	95.4%		O/P 56V/10.7A
O/P Current Tolerance	-5%		+5%	
O/P Current Ripple(PK-AV)		5%	10%	Full load
Start-up Current Overshoot			10%	Full load
Start-up Time			0.5S	277Vac, Full load
			0.5S	347Vac, Full load
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 Typ., Current derating < Tc Min., Current recovery
Short Circuit Protection				Driver will not be damaged, Hiccup mode

SS-600M Series LED Driver

O/P Characteristics(SS-600M-190BH):

Parameter	Min.	Typ.	Max.	Remark
O/P Voltage Range	95V		190V	Power derated @143-215V
Rated O/P Voltage	143V		190V	$P_o = V_o \cdot I_o = 600W$, Full load
Rated O/P Current	3.16A		4.2A	4.2A for 143V, 3.16A for 190V
Adj. O/P Current (AOC) Range	0.7A		4.2A	Adjustable by program
No Load Voltage			210V	
Efficiency @277Vac	92.5%	94.5%		O/P 190V/3.16A
Efficiency @347Vac	93.0%	95.0%		O/P 190V/3.16A
Efficiency @480Vac	93.4%	95.5%		O/P 190V/3.16A
O/P Current Tolerance	-5%		+5%	
O/P Current Ripple(PK-AV)		5%	10%	Full load
Start-up Current Overshoot			10%	Full load
Start-up Time			0.5S	277Vac, Full load
			0.5S	347Vac, Full load
Line Regulation	-2%		+2%	Full load
Load Regulation	-2%		+2%	
Temperature Coefficient	-0.03%/°C		+0.03%/°C	T _c : 0°C~90°C
OTP	90°C	100°C	110°C	> T _c Typ., Current derating < T _c Min., Current recovery
Short Circuit Protection				Driver will not be damaged, Hiccup mode

SS-600M Series LED Driver

O/P Characteristics(SS-600M-286BH):

Parameter	Min.	Typ.	Max.	Remark
O/P Voltage Range	143V		286V	Power derated @143-215V
Rated O/P Voltage	215V		286V	$P_o = V_o \cdot I_o = 600W$, Full load
Rated O/P Current	2.1A		2.8A	2.8A for 215V, 2.1A for 286V
Adj. O/P Current (AOC) Range	0.35A		2.8A	Adjustable by program
No Load Voltage			310V	
Efficiency @277Vac	91.0%	93.0%		O/P 286V/2.1A
Efficiency @347Vac	92.0%	94.0%		O/P 286V/2.1A
Efficiency @480Vac	93.0%	95.0%		O/P 286V/2.1A
O/P Current Tolerance	-5%		+5%	
O/P Current Ripple(PK-AV)		5%	10%	Full load
Start-up Current Overshoot			10%	Full load
Start-up Time			0.5S	277Vac, Full load
			0.5S	347Vac, Full load
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 Typ., Current derating < Tc Min., Current recovery
Short Circuit Protection				Driver will not be damaged, Hiccup mode

SS-600M Series LED Driver

O/P Characteristics(SS-600M-428BH):

Parameter	Min.	Typ.	Max.	Remark
O/P Voltage Range	214V		428V	Power derated @214-343V
Rated O/P Voltage	343V		428V	$P_o = V_o \cdot I_o = 600W$, Full load
Rated O/P Current	1.4A		1.75A	1.75A for 343V, 1.4A for 428V
Adj. O/P Current (AOC) Range	0.35A		1.75A	Adjustable by program
No Load Voltage			460V	
Efficiency @277Vac	93.5%	94.5%		O/P 428V/1.4A
Efficiency @347Vac	94.0%	95.0%		O/P 428V/1.4A
Efficiency @480Vac	94.5%	95.5%		O/P 428V/1.4A
O/P Current Tolerance	-5%		+5%	
O/P Current Ripple(PK-AV)		5%	10%	Full load
Start-up Current Overshoot			10%	Full load
Start-up Time			0.5S	277Vac, Full load
			0.5S	347Vac, Full load
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 Typ., Current derating < Tc Min., Current recovery
Short Circuit Protection				Driver will not be damaged, Hiccup mode

SS-600M Series LED Driver

Other Characteristics:

Parameter		Min.	Typ.	Max.	Remark
AUX Power	O/P Voltage	11.4V	12V	12.6V	
	O/P Current			300mA	Operate max 15min at 400mA
0-10V Dimming (Optional)	Dim Vmax	0V		12V	Negative dimming by programming
	Dim Range	10%Ioset		100%Ioset	DIM+ source current 110uA .
	Rec.Dim Range	0V		10V	Dimming prohibits reverse connection.
PWM Dimming (Optional)	PWM High	9.8V		10.2V	Negative dimming by programming
	PWM Low	0V		0.3V	DIM+ source current 110uA .
	Frequency	1KHz		2KHz	Dimming prohibits reverse connection.
	PWM Duty	0%		100%	
Resistor Dimming (Optional)	Resistance	0K		100K	Negative dimming by programming
	Dim Range	10%		100%	DIM+ source current 110uA .
Dim to Off	Dim off	6.5%	8%	9%	
	Dim on	7%	9%	10%	
Timing Curve(Optional)		By programming			
Life Time(Tc≤65℃)		100,000 hours			80% Load
Life Time(Tc≤72℃)		62,000 hours			80% Load
MTBF		200,000 hours			347Vac,Full load, Ta=25℃ (MIL-HDBK-217F)
IP Grade		IP67			
Tc		90℃			
Warranty		5 years			Tc : 72℃
Net Weight		3750g			
Dimension		282mm*144mm*49.5mm			L x W x H

NOTE: 1,All the parameters above are tested Ta 25℃ and LED load, unless specified.

2. When using resistor dimming (parallel connection of dimming wires), if the number of parallels is: N, the dimming resistor should be realized 0-100% dimming range, resistance value: 91KΩ/N.

SS-600M Series LED Driver

Environmental Requirements

Parameter	Min.	Typ.	Max.	Remark
Operating Temperature(Tcase)	-40℃	25℃	+90℃	
Storage Temperature	-40℃	25℃	+90℃	
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	✓	
TUV	EN 61347-2-13:2014/A1:2017 EN 61347-1:2015 EN 62493:2015		
RCM	AS/NZS61347.2.13		
CCC	GB 19510.14-2009		
CE	EN 61347-2-13:2014 EN61347-1:2008+A1:2011+A2:2013		

EMI/EMS	Criterion	Remark
Conduction Emission	FCC Part15: Subpart A ANSI 63.4:2014	Class A
Radiation Emission	FCC Part15: Subpart A ANSI 63.4:2014	Class A
Harmonic Current Emissions	IEC/EN 61000-3-2	Class C
Surge	IEC/EN61000-4-5	DM: 6kV,CM: 10kV,Criterion B
	ANSI/C82.77-5-2017	DM: 6kV,CM: 6kV,Criterion B
Ring Wave	IEC/EN 61000-4-12	DM: 6kV,CM: 6kV,Criterion B

SS-600M Series LED Driver

Safety Test Items:

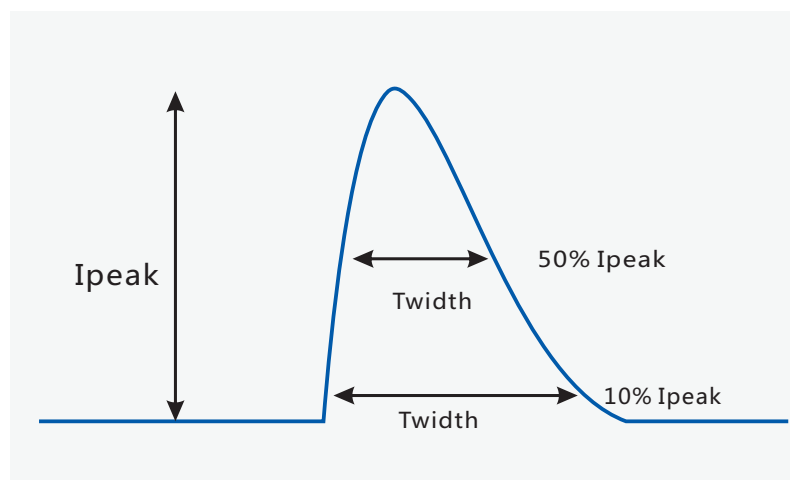
Safety Test Items	Technical Indicators			Remark
Insulation Requirements	UL Insulation Requirements	TUV Insulation Requirements	CCC Insulation Requirements	
Input-O/P	2U+1000	/	/	Reinforced insulation
Input-Case	2U+1000	/	/	Basic insulation
Input-Dim	2U+1000	/	/	Reinforced insulation
O/P-Dim	2U+1000	/	/	Basic insulation
O/P-Case	2U+1000	/	/	Basic insulation
Dim-Case	500	/	/	Basic insulation
Insulation Resistance	$\geq 10\text{M}\Omega$			Input-O/P, Test voltage: 500Vdc
Ground Resistance	$\leq 0.1\Omega$			25A/1min
Leakage Current	$\leq 0.75\text{mA}$			480Vac

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 (ACL and ACN), (V+ and V-), (Dim+ and Dim - and Vaux+ and Vaux- and STB) when Hi-pot test.
3. "U" means the maximum working voltage between testing terminals.

Performance Curves:

Input Inrush Current

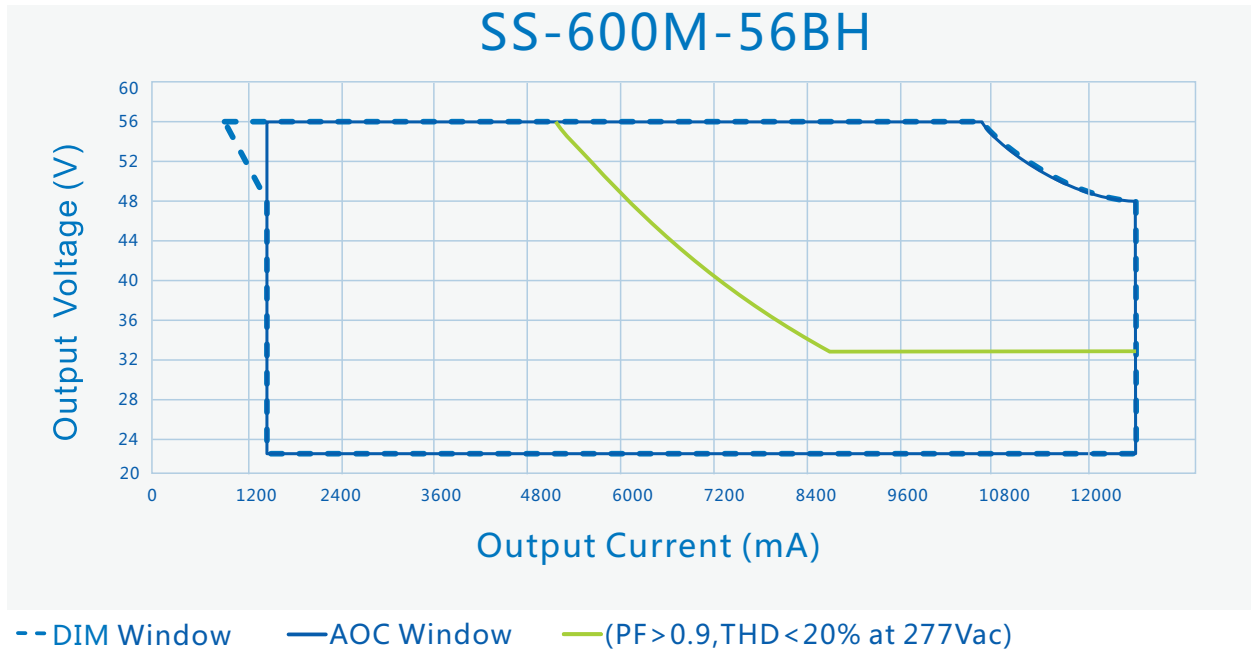


Vin	Ipeak	T(@10% of Ipeak)	T(@50% of Ipeak)
277Vac	30A	750uS	
347Vac	40A	650uS	
480Vac	55A	550uS	

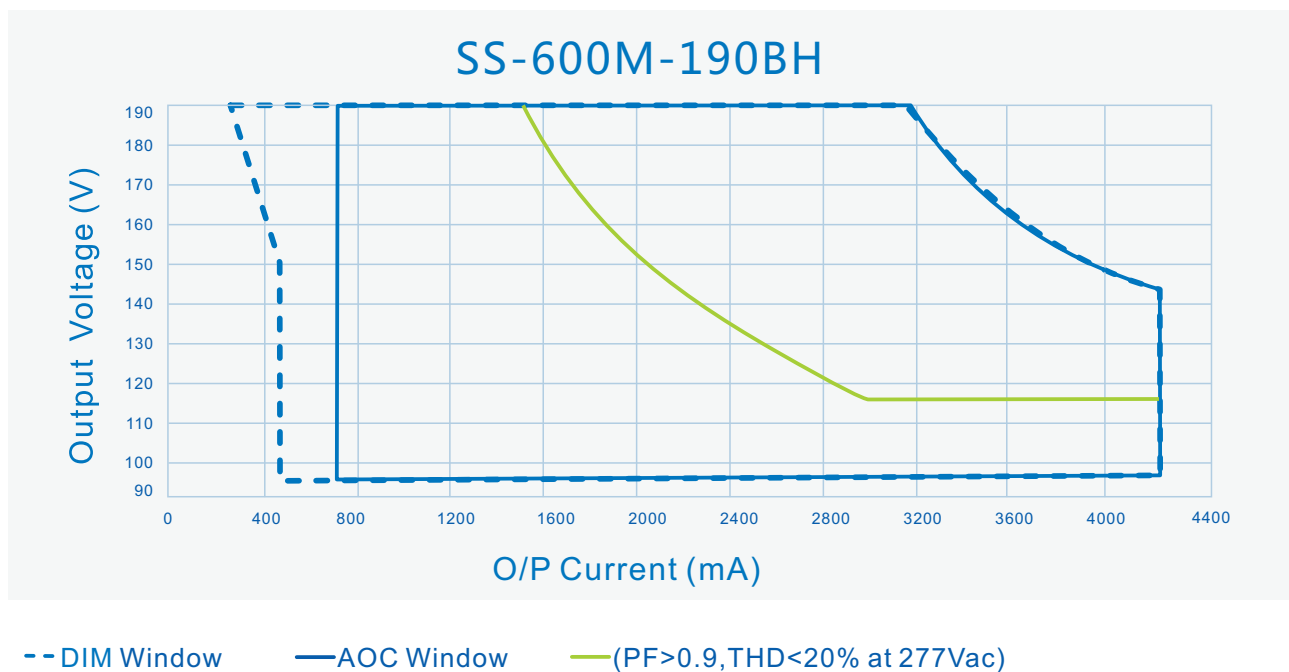
SS-600M Series LED Driver

Performance Curves:

O/P Voltage Vs. O/P Current(Dim/AOC Window)



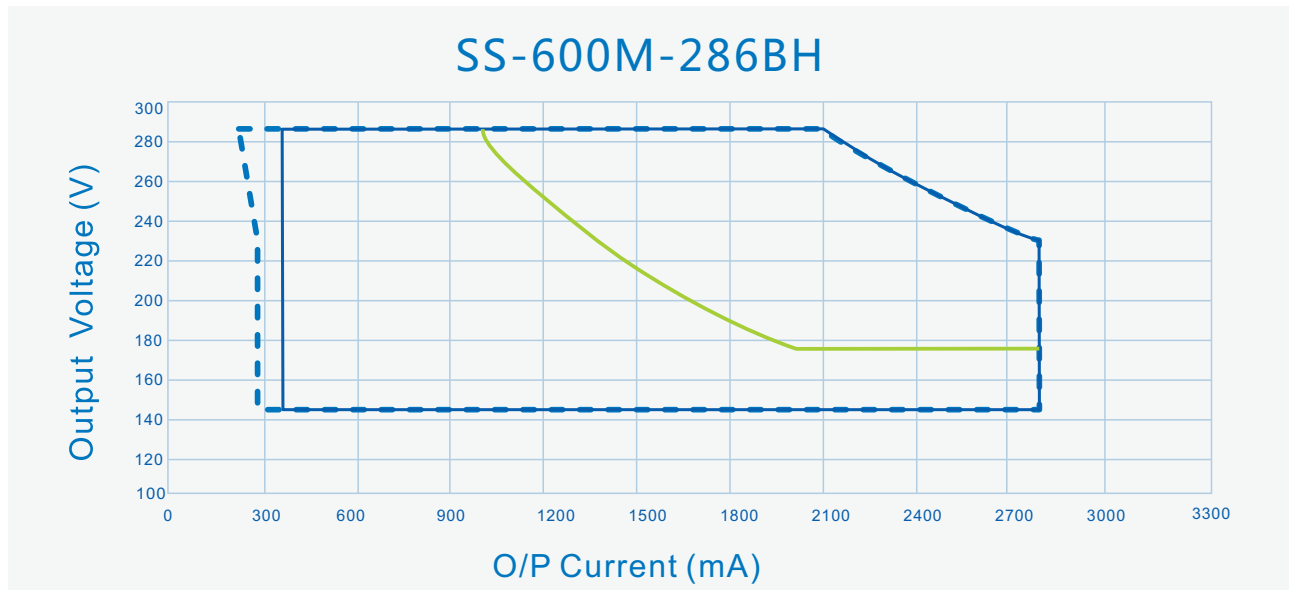
O/P Voltage Vs. O/P Current(Dim/AOC Window)



SS-600M Series LED Driver

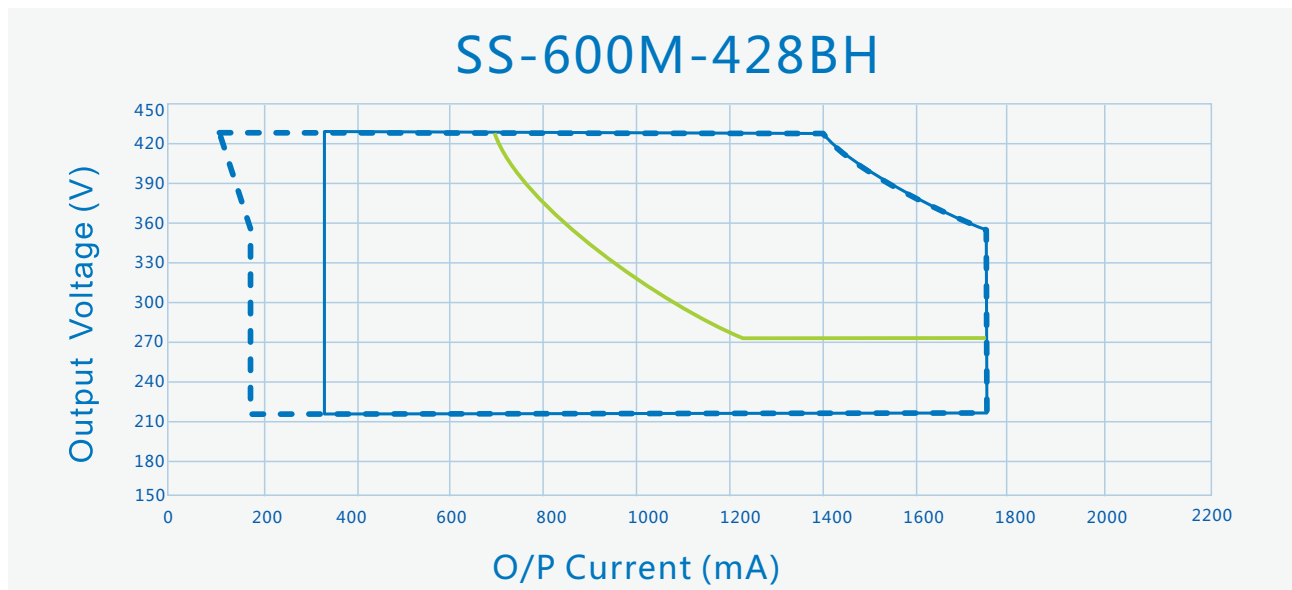
Performance Curves:

O/P Voltage Vs. O/P Current(Dim/AOC Window)



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

O/P Voltage Vs. O/P Current(Dim/AOC Window)

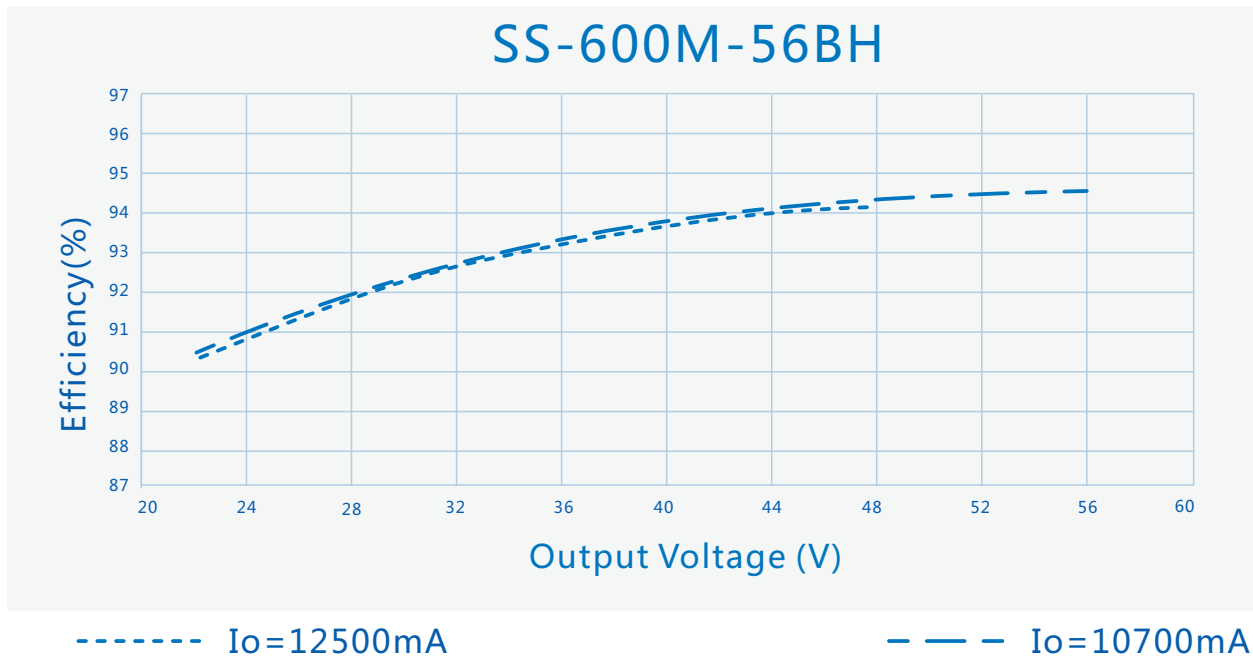


-- DIM Window — AOC Window — (PF>0.9, THD<20% at 277Vac)

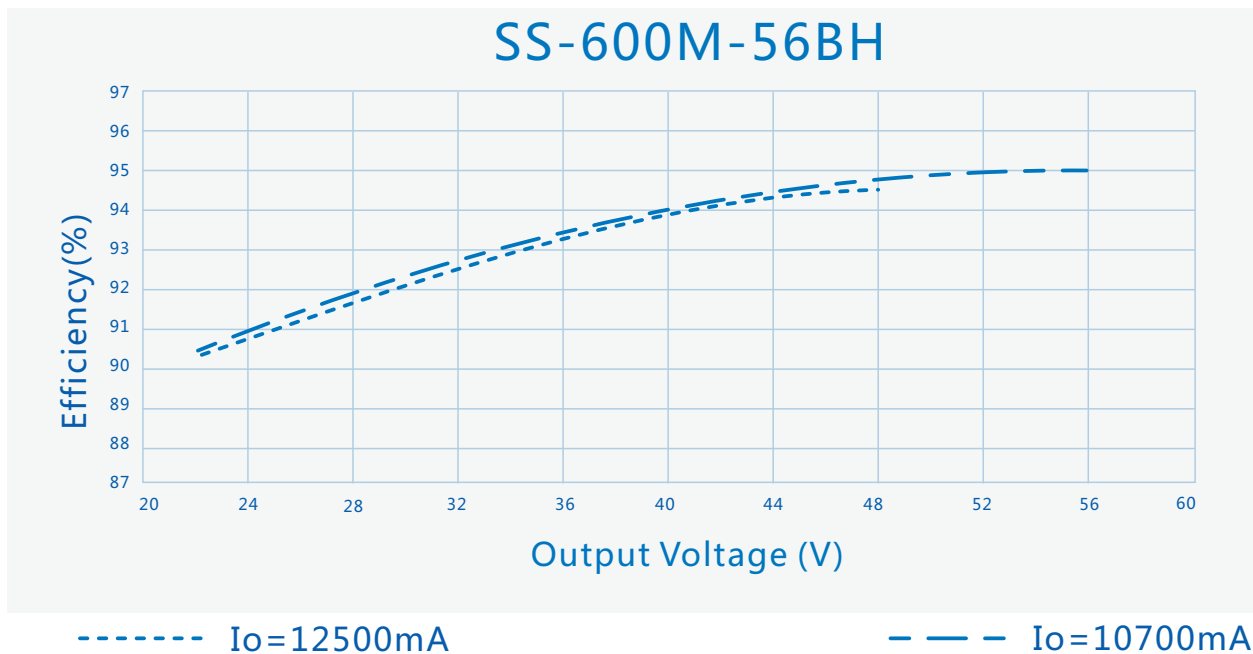
SS-600M Series LED Driver

Performance Curves:

Efficiency Vs. O/P Voltage ($V_{in}=277V_{ac}$)



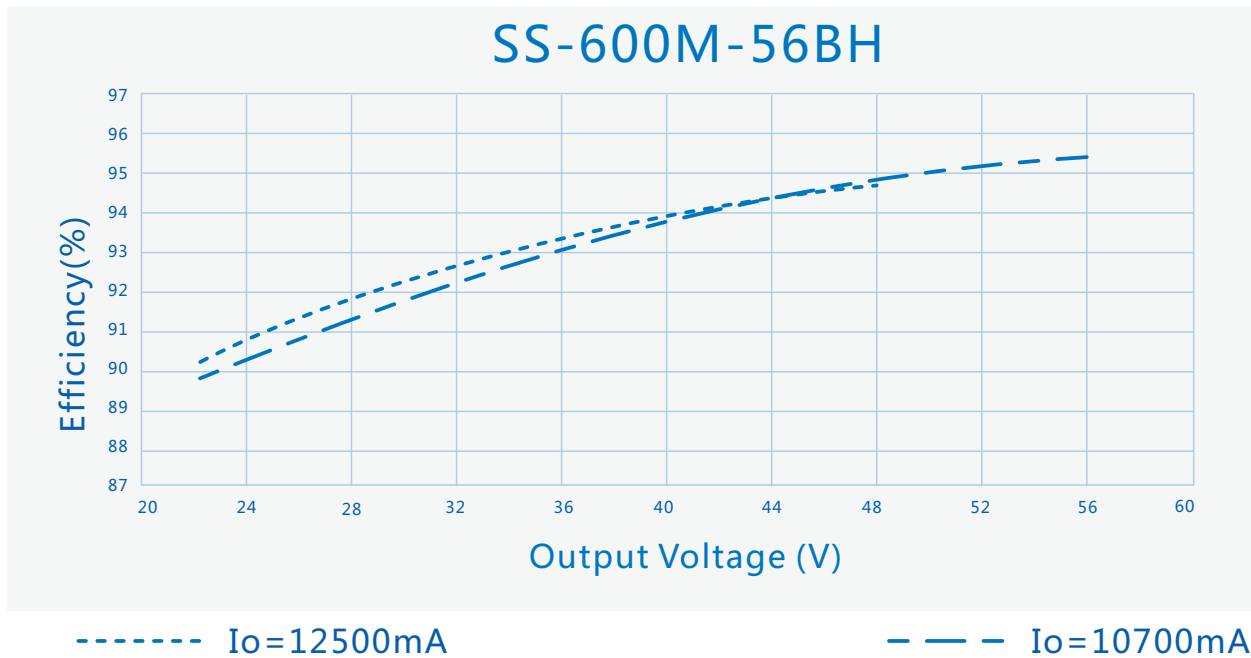
Efficiency Vs. O/P Voltage ($V_{in}=347V_{ac}$)



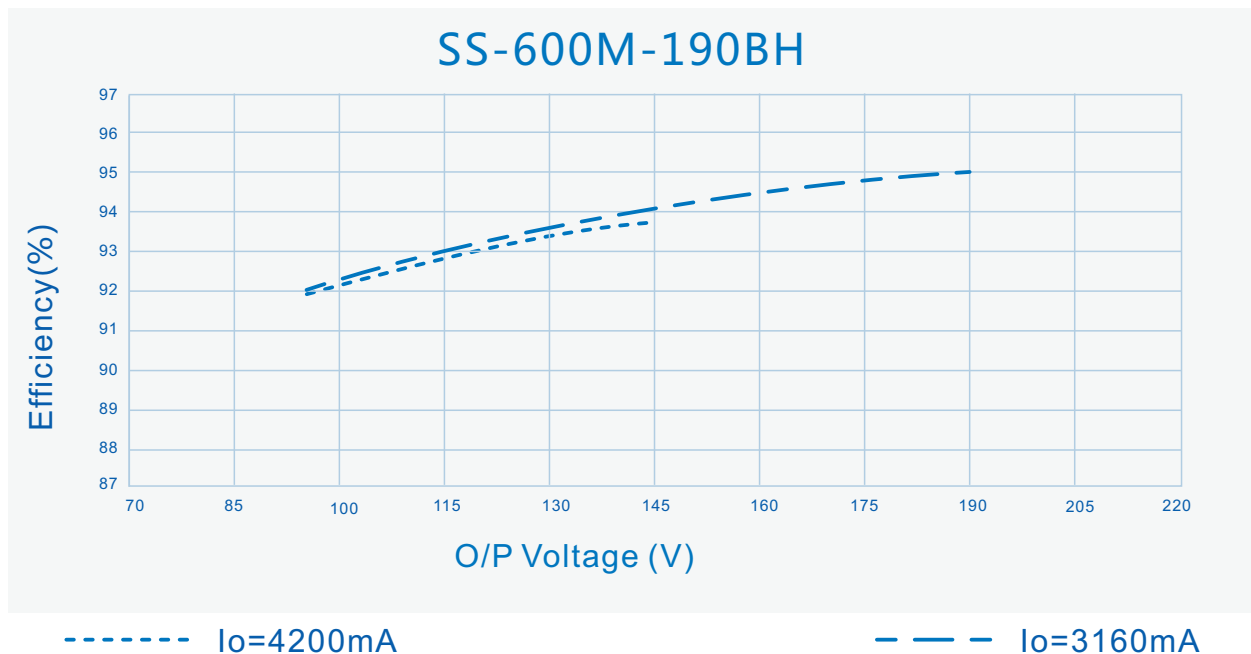
SS-600M Series LED Driver

Performance Curves:

Efficiency Vs. O/P Voltage ($V_{in}=480V_{ac}$)



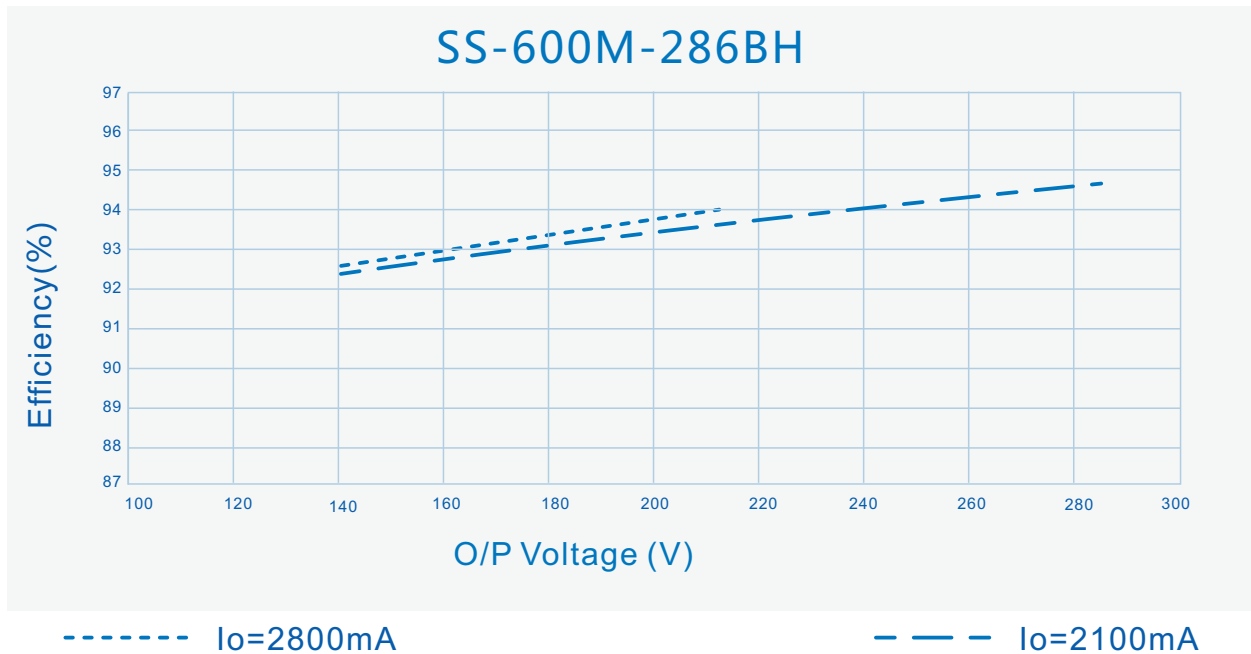
Efficiency Vs. O/P Voltage ($V_{in}=277V_{ac}$)



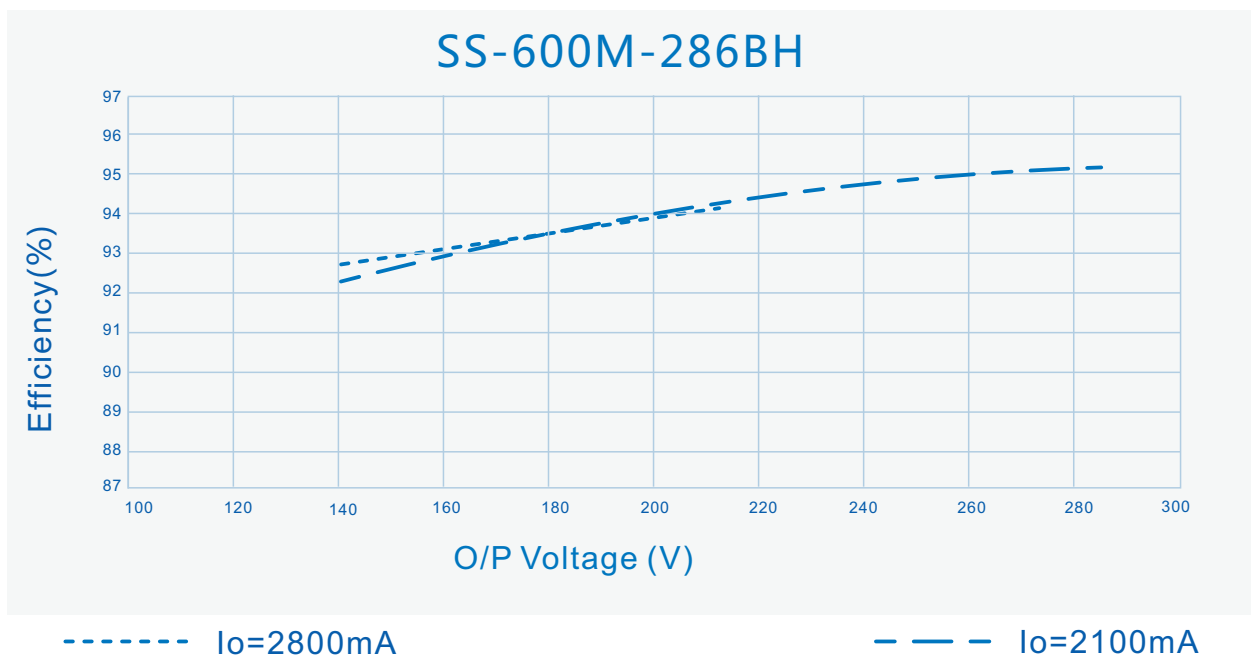
SS-600M Series LED Driver

Performance Curves:

Efficiency Vs. O/P Voltage ($V_{in}=277V_{ac}$)



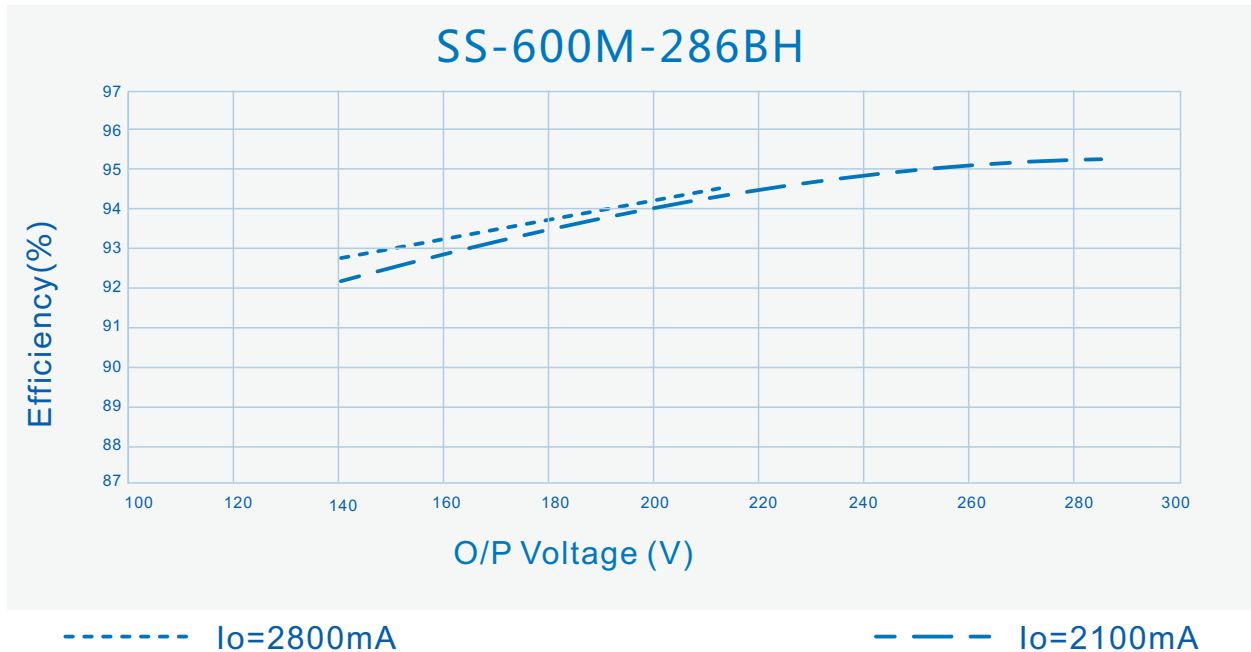
Efficiency Vs. O/P Voltage ($V_{in}=347V_{ac}$)



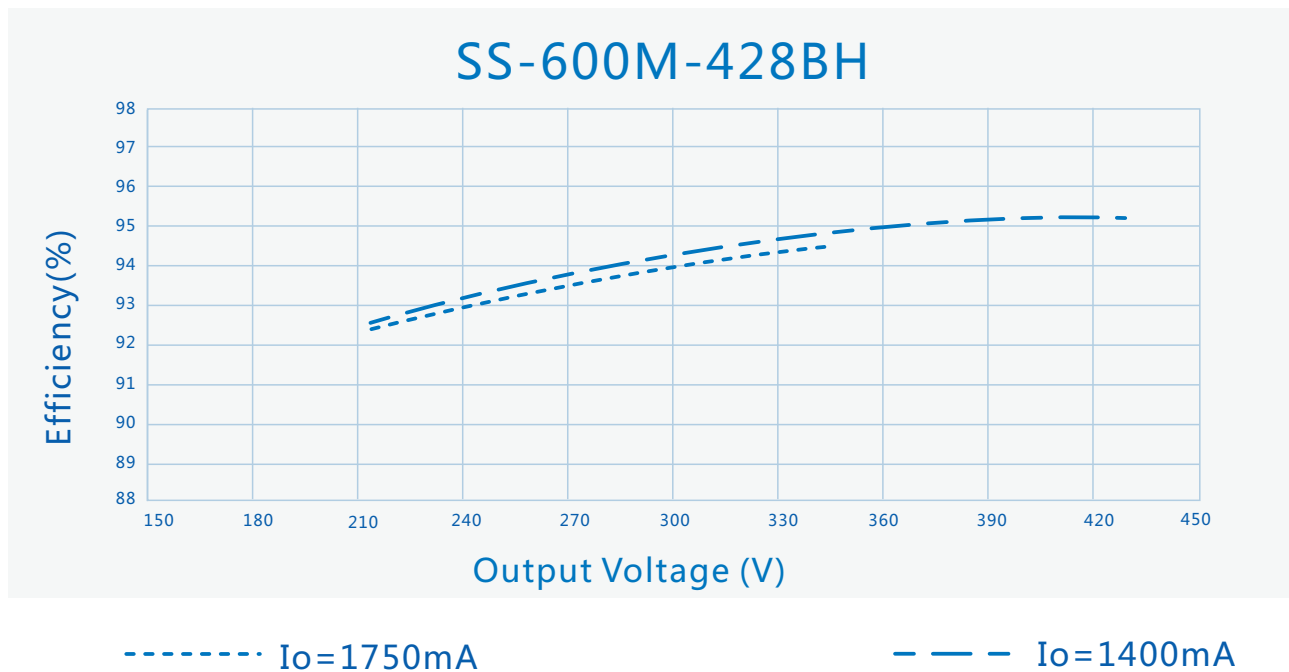
SS-600M Series LED Driver

Performance Curves:

Efficiency Vs. O/P Voltage ($V_{in}=480V_{ac}$)



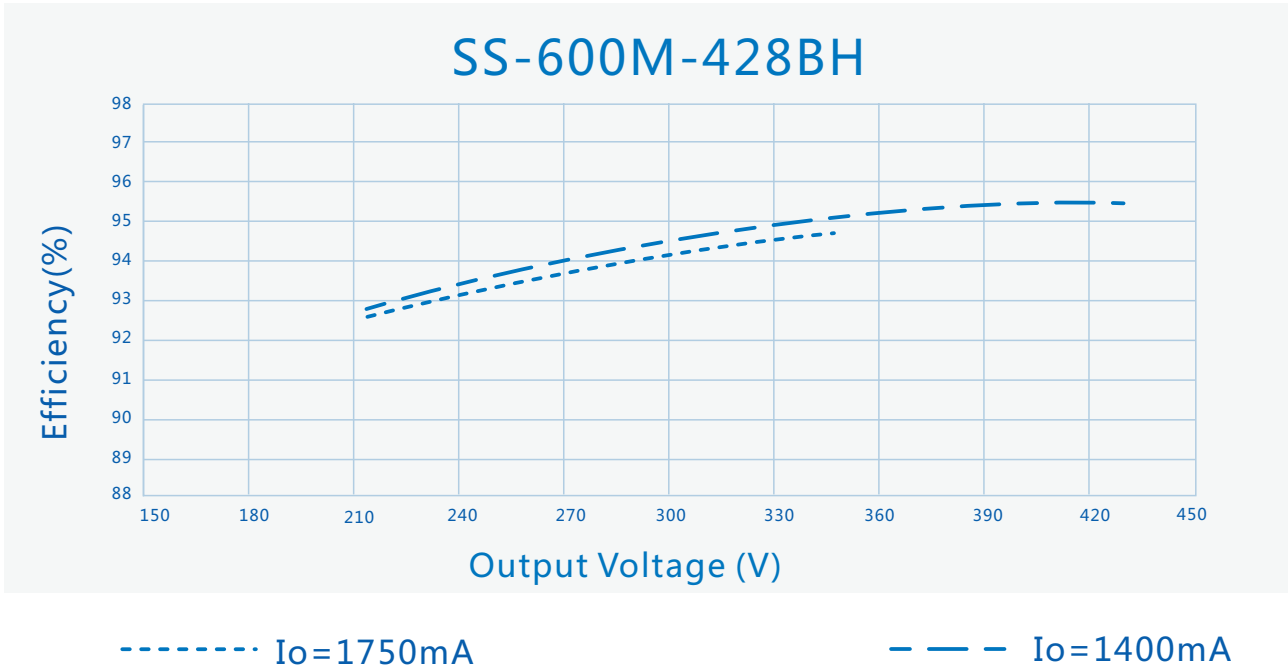
Efficiency Vs. O/P Voltage ($V_{in}=277V_{ac}$)



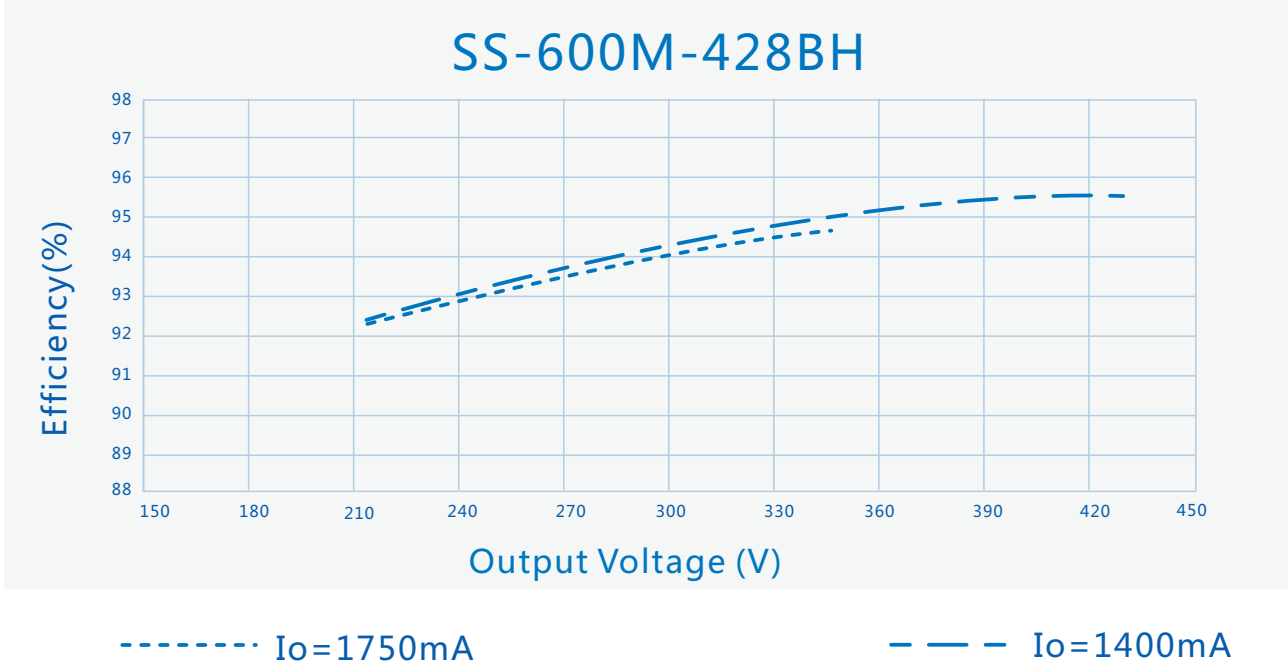
SS-600M Series LED Driver

Performance Curves:

Efficiency Vs. O/P Voltage ($V_{in}=347V_{ac}$)



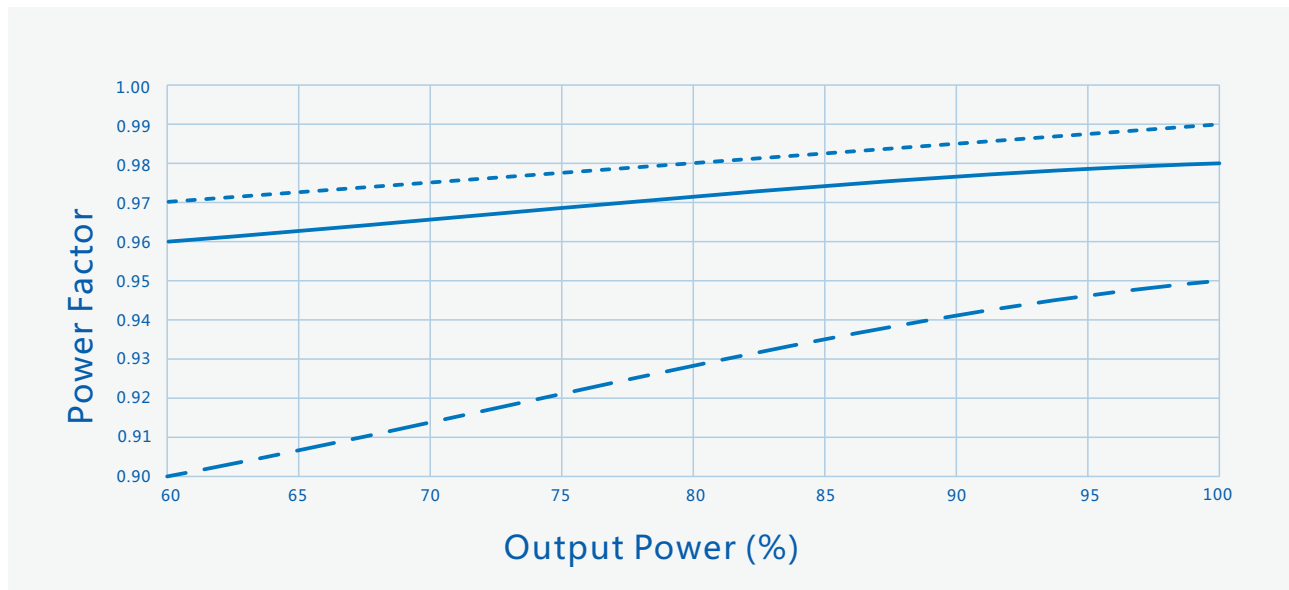
Efficiency Vs. O/P Voltage ($V_{in}=480V_{ac}$)



SS-600M Series LED Driver

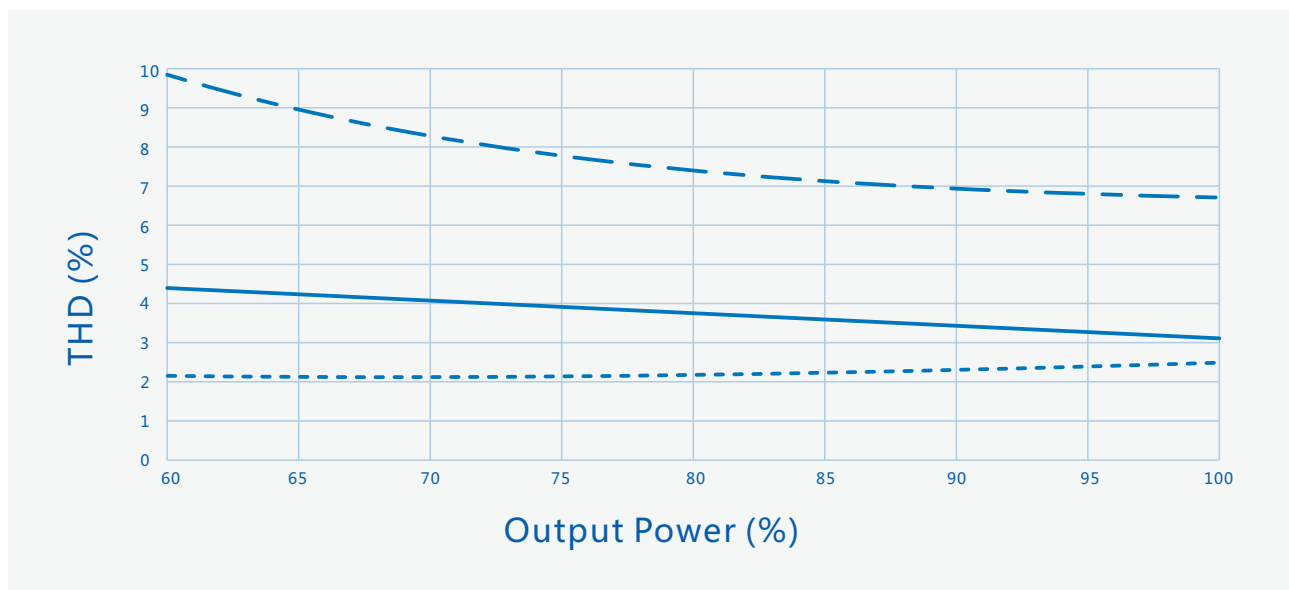
Performance Curves:

Power Factor Vs. O/P Power



----- Vin=277Vac ————— Vin=347Vac - . - . Vin=480Vac

THD Vs. O/P Power

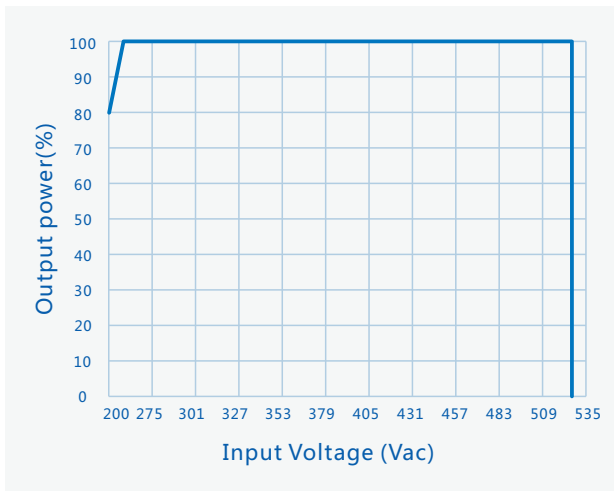


----- Vin=277Vac ————— Vin=347Vac - . - . Vin=480Vac

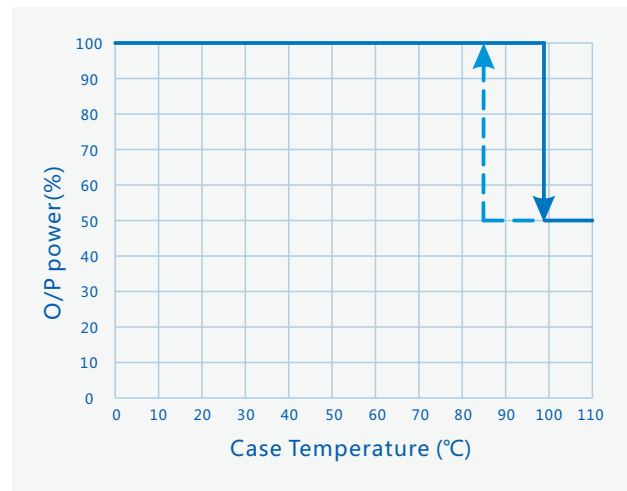
SS-600M Series LED Driver

Performance Curves:

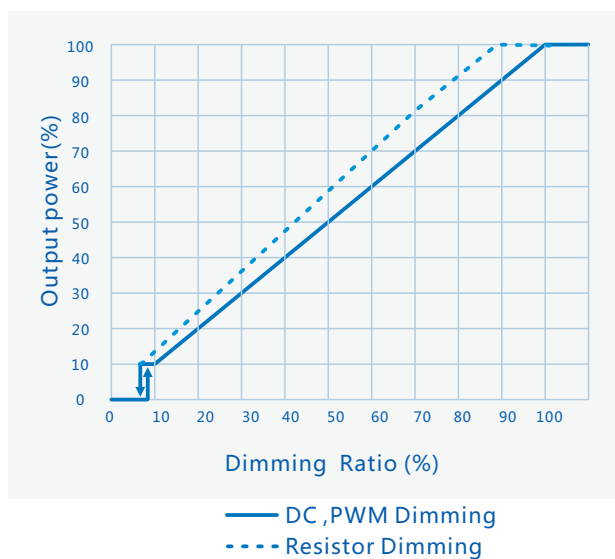
O/P Power Vs. Input Voltage
(Ta Max.55°C)



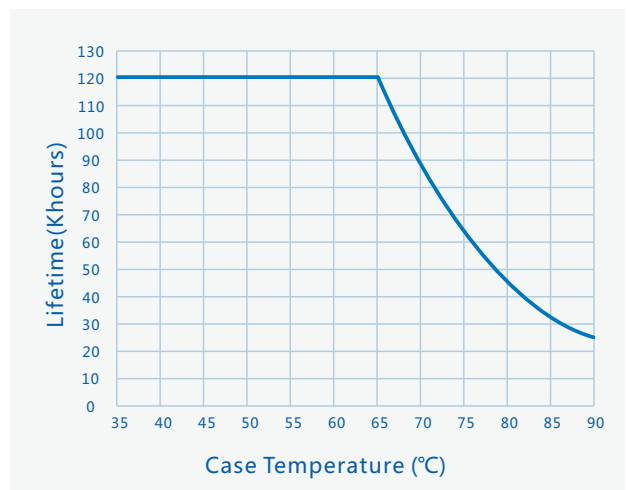
O/P Power Vs. Case Temperature



O/P Power Vs. Dimming



Lifetime Vs. Case Temperature



SS-600M Series LED Driver

Constant Lumen Output

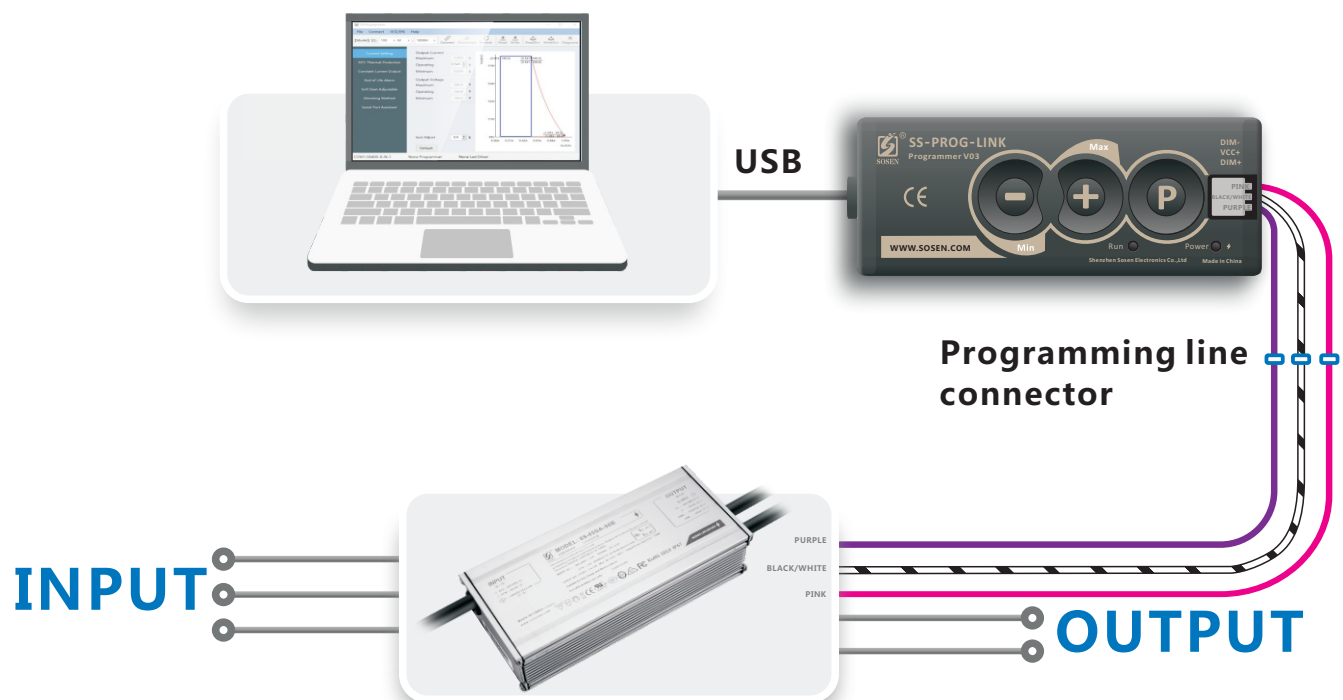
Constant Lumen Output are design to maintain fixture's stable output lumen by increasing driver's output current within driver's life span to counteract LED lumen degradation.

Programming connection diagram :

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

Auto-Adjust by Percentage: Driver's O/P 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 O/P 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 or without PC, other than the traditional on-line mode.

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SS-600M Series LED Driver

Mechanical Characteristics

The diagram shows a central blue box labeled "LED DRIVER". On the left, under the heading "INPUT", there are three terminals: "ACL", "ACN", and a ground symbol. On the right, under the heading "O/P", there are four terminals: "V+", "V-", "DIM+ Dimming / Programming", and "DIM-". Below these, there are two more terminals labeled "Vaux+" and "Vaux-", with the text "AUX Power" between them. A ground symbol is also shown near the bottom left input terminal.

AC Input Cable(Exposed Length 450±10mm):
UL model: STW,3*18AWG,O.D: 9.4mm,Black:L,White:N,Green:⊕

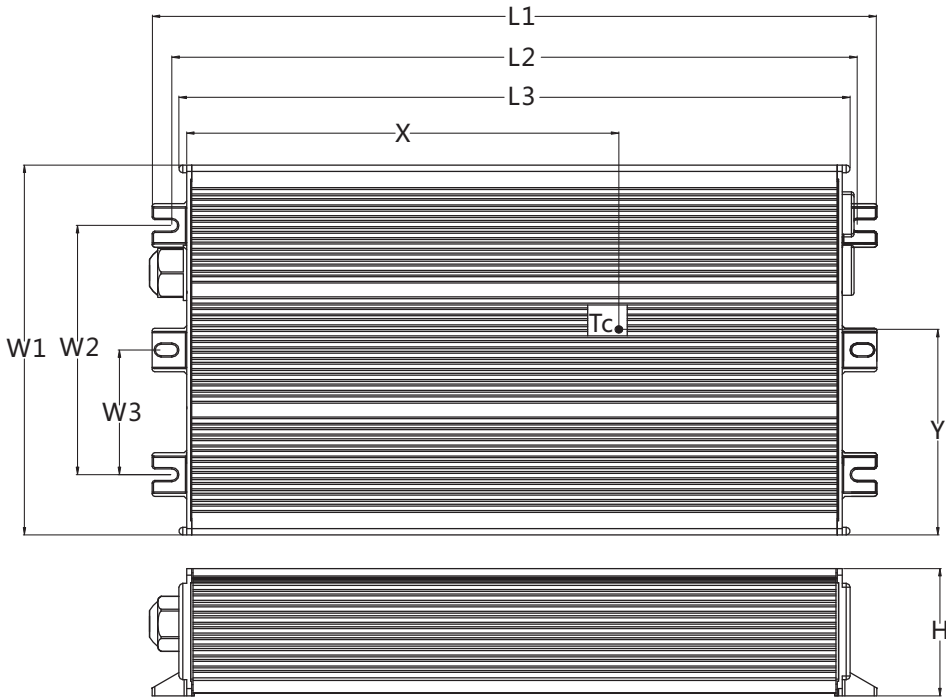
DC O/P Cable(Exposed Length 250±10mm):
SS-600M-56BH:
UL model: SJTW, 2*14AWG, O.D: 9.0mm, Red: V+ , Black: V-
SS-600M-190BH/SS-600M-286BH/SS-600M-428BH:
UL model: SJTW, 2*18AWG, O.D: 7.3mm, Red: V+ , Black: V-

DIM/AUX Power/Programming Cable (Exposed Length 220±10mm):
UL model: STYLE 21996,4*22AWG, O.D: 5.6mm,Purple : DIM+, Pink: DIM- Black/White: Vaux+ , Blue/White: Vaux-

Name Description	Standard Code	mm(In.)
Overall Length	L1	282(11.10)
Mounting Hole Length	L2	266.5(10.5)
Case Length	L3	255(10.04)
Case Height	H	49.5(1.95)

Note :
1,Please follow the "LED Driver User Manual" obtained from SOSEN's official website for assembly.
2,AC Input Cable,DC O/P Cable, DIM/AUX Power/Programming Cable:
Peeled length of cable:43±5mm,
Tinned length of wire:10±2mm

Name Description	Standard Code	mm(In.)
Case Width	W1	144(5.67)
Mounting Hole Width	W2	97(3.82)
Mounting Hole Width	W3	48.5(1.91)
TC Point Position	X	168(6.61)
TC Point Position	Y	80(3.15)



SS-600M Series LED Driver

Mechanical Characteristics(Rubber ring structure)

The diagram shows a blue rectangular LED DRIVER with various terminals. On the left, under 'INPUT', are terminals for ACL, ACN, and a ground symbol. On the right, under 'O/P', are terminals for V+, V-, DIM+ (Dimming / Programming), DIM-, Vaux+ (AUX Power), and Vaux-.

AC Input Cable(Exposed Length 450±10mm):
UL model: STW,3*18AWG,O.D: 9.4mm,Black:L,White:N,Green:⊕

DC O/P Cable(Exposed Length 250±10mm):
SS-600M-56BH:
UL model: SJTW, 2*14AWG, O.D: 9.0mm, Red: V+ , Black: V-
SS-600M-190BH/SS-600M-286BH/SS-600M-428BH:
UL model: SJTW, 2*18AWG, O.D: 7.3mm, Red: V+ , Black: V-

DIM/AUX Power/Programming Cable (Exposed Length 220±10mm):
UL model: STYLE 21996,4*22AWG, O.D: 5.6mm,Purple : DIM+, Pink: DIM-
Black/White: Vaux+, Blue/White: Vaux-

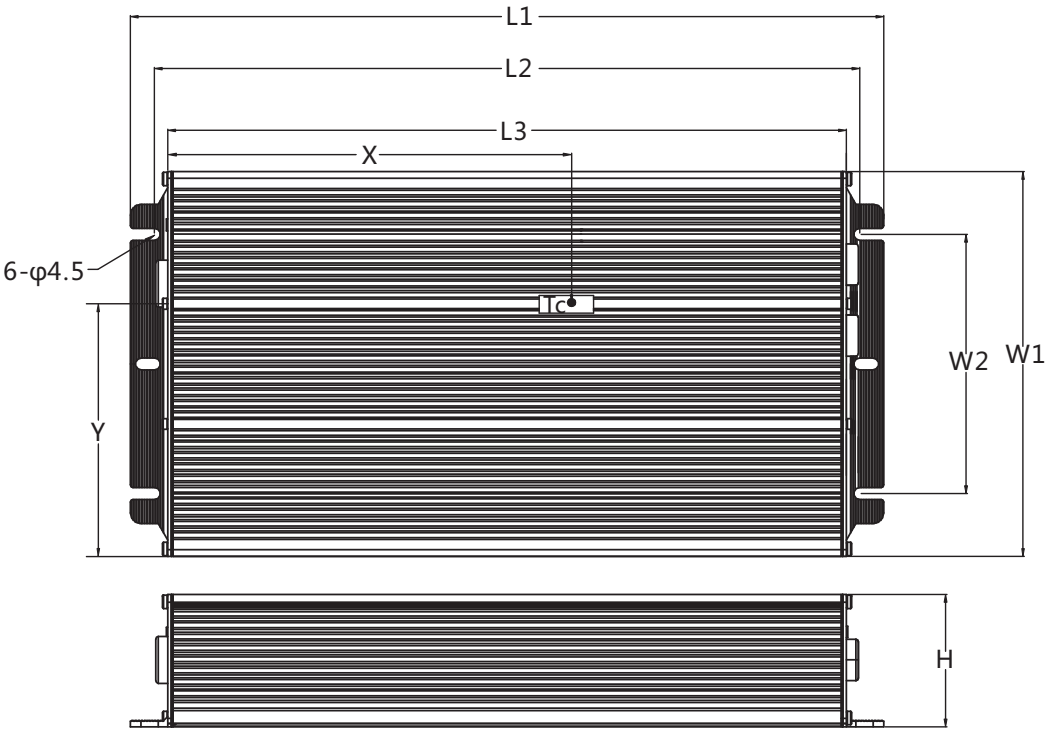
Name Description	Standard Code	mm(In.)
Overall Length	L1	282(11.10)
Mounting Hole Length	L2	264(10.39)
Case Length	L3	254(10)
Case Height	H	49.5(1.95)

Note :

1,Please follow the "LED Driver User Manual" obtained from SOSEN's official website for assembly.

2,AC Input Cable,DC O/P Cable, DIM/AUX Power/Programming Cable:
Peeled length of cable:43±5mm,
Tinned length of wire:10±2mm

Name Description	Standard Code	mm(In.)
Case Width	W1	144(5.67)
Mounting Hole Width	W2	97(3.82)
TC Point Position	X	168(6.61)
TC Point Position	Y	80(3.15)



SS-600M Series LED Driver



Assembly Tips

1. Please take isolation and waterproof measures if the dimming cable is not in use.

Package

- Outside carton dimension: $L \times W \times H = 495\text{mm} \times 385\text{mm} \times 162\text{mm}$;
- 4PCS/Carton;
- Net weight/Piece: 3.75kg; Gross weight/Carton: 16kg;
- Please refer to the product name, model number, manufacturer identification, QC PASS, manufacturing date on the package.

Transportation

Packaging is designed suitable for transportation by trucks, vessels and flights. The products should be avoided direct sunlight and rain, loaded/unloaded with caution.

Storage

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

RoHS

Products comply with RoHS Directive (2011/65/EU) and amendment 2015/863/EU.

Revision History

Version	Description of Update	Updated Date	Remark
V00	Original Release	2020/10/09	
V01	Increase Model	2021/03/10	
V02	Increase Model	2021/04/07	
V03	Update Tinned Length Of Wire	2021/07/02	
V04	Update DIM Cable Color	2021/09/02	
V05	Update Mechanical Characteristics	2022/04/07	
V06	Update Outside Carton Dimension	2022/05/10	
V07	Add Rubber Ring Structure	2022/09/09	
V08	Add Page Number	2023/02/01	
V09	Update Certification Identification	2023/04/25	