

SOSEN LED Driver, Your Smart Choice

Specifications

SS-680VP-H Series LED Driver

Model: SS-680VP-HXX

Description: 680W LED Driver

Rev.: V02

Release Date: 2024-11-02

SS-680VP-H Series LED Driver

SOSEN
LED DRIVER



LED DRIVER

VP-H Series



Features:

- Efficiency up to 95.5%
- Dimming: DALI-2, 0-10V, PWM, Resistor, Timing
- Dim-to-Off
- Surge Protection: CM: 10kV, DM: 6kV
- AUX Power: 12V/0.2A
- Constant Lumen, Life Warning
- External NTC to Protect LED Module
- Standby Power < 0.5W
- IP67
- Communication Function With PC
- Type HL, suitable for hazardous locations
- Protections: SCP/OTP/OVP
- Warranty: 5 years
- Warranty: 8 years (Optional)



Description:

SS-680VP-H series are 680W constant current LED Driver with wide O/P voltage range and adjustable O/P current by program. LED luminaries manufactures can easily to design luminaries and reduce cost.

Application:

Stadium lighting, Square lighting, Horticultural lighting, Fish lighting

Model List:

Model	AC Input Range	Max. Pout	Vout Range	Full Power Working Voltage	Iout	Default Current	Iout (DALI-2)	THD (Typ.)	PF (Typ.)	Eff. (Typ.)
SS-680VP-H56*	90-305Vac	680W	28-56V	48-56V	1.4-14.16A	12.1A	7.86-14.16A	8%	0.97	95%
SS-680VP-H200*	90-305Vac	680W	100-200V	150-200V	0.7-4.53A	3.4A	2.5-4.53A	8%	0.97	95%

Note:

1. Default Tested: at 220Vac, 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.

SS-680VP-H 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		✓		✓	✓	
BHN		✓	✓	✓	✓	
DH	✓	✓				
DHN	✓	✓	✓			

Input Characteristics:

Parameter	Min.	Typ.	Max.	Remark
Rated AC Input Range	100Vac		277Vac	Ref. derating curve
AC Input Range	90 Vac		305Vac	Ref. derating curve
Input Frequency Range	47Hz	50/60Hz	63Hz	
Max Input Current			8A	100Vac, full load
Max Input Power			800W	100Vac, full load
Max Inrush Current(120Vac)			12A	Cold Start
Max Inrush Current(220Vac)			21A	Cold Start
Max Inrush Current(277Vac)			27A	Cold Start
Standby Power			0.5W	220Vac/50Hz, Dim to off or Enable STB
Power Factor	0.95	0.97		220Vac/50Hz, full load
	0.90			100-277Vac/50Hz, 70-100% load
THD		8%	10%	220Vac/50Hz, full load
			20%	100-277Vac/50Hz, 70-100% load

SS-680VP-H Series LED Driver

O/P Characteristics(SS-680VP-H56*):

Parameter	Min.	Typ.	Max.	Remark
O/P Voltage Range	28V		56V	Power Derated @28-48V
Rated O/P Voltage	48V		56V	$P_o = V_o \cdot I_o = 680W$, full load
Rated O/P Current	12.14A		14.16A	14.16A for 48V, 12.14A for 56V
Adj. O/P Current (AOC) Range	1.4A		14.16A	By Programming
	7.86A		14.16A	For DALI-2
No Load Voltage			60V	
Efficiency @120Vac	90.0%	92.0%		O/P 56V/12.14A
Efficiency @220Vac	93.0%	95.0%		O/P 56V/12.14A
Efficiency @277Vac	93.5%	95.5%		O/P 56V/12.14A
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	120Vac, Full load
			0.5S	220Vac, Full load
			0.7S	230Vac, For DALI-2
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	Drop current when OTP, and it can be automatically restored after the abnormality is removed.
Short Circuit Protection				Driver will not be damaged, Hiccup mode
				Driver will not be damaged, Shut down for DALI-2

SS-680VP-H Series LED Driver

O/P Characteristics(SS-680VP-H200*):

Parameter	Min.	Typ.	Max.	Remark
O/P Voltage Range	100V		200V	Power Derated @100-150V
Rated O/P Voltage	150V		200V	Po=Vo*Io=680W, full load
Rated O/P Current	3.4A		4.53A	4.53A for 150V,3.4A for 200V
Adj. O/P Current (AOC)Range	0.7A		4.53A	By Programming
	2.5A		4.53A	For DALI-2
No Load Voltage			220V	
Efficiency @120Vac	90.5%	92.5%		O/P 200V/3.4A
Efficiency @220Vac	93.0%	95.0%		O/P 200V/3.4A
Efficiency @277Vac	93.5%	95.5%		O/P 200V/3.4A
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	120Vac, Full load
			0.5S	220Vac, Full load
			0.7S	230Vac,For DALI-2
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	95°C	110°C	Drop current when OTP, and it can be automatically restored after the abnormality is removed.
Short Circuit Protection				Driver will not be damaged, Hiccup mode
				Driver will not be damaged, Shut down for DALI-2
Input overvoltage protection (turn off output)	320Vac		340Vac	Input voltage 305-320Vac automatic recovery

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Other Characteristics:

Parameter		Min.	Typ.	Max.	Remark
AUX Power	O/P Voltage	11.4V	12V	12.6V	
	O/P Current	0mA	200mA		
0-10V Dimming (Optional)	Dim Vcc	0V		12V	Negative dimming by programming
	Dim Range	10%loset		100%loset	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	0Kohm		100Kohm	Negative dimming by programming
	Dim Range	10%		100%	DIM+ source current 110uA.
Dim to Off	Dim off	7%	8%	9%	By DC voltage, PWM, resistance dimming ratio
	Dim on	8%	9%	10%	By DC voltage, PWM, resistance dimming ratio
DALI Dimming Level		1-170(10%)		254(100%)	Logarithmic dimming curve
Timing Curve(Optional)		By programming			DALI models does not support this function
DALI Dimming(Optional)		Meet DALI-2			
Constant Lumen(Optional)		By programming			DALI models does not support this function
Life Warning(Optional)		By programming			DALI models does not support this function
Life Time($T_c \leq 75^\circ\text{C}$)		50,000 hours			80% Load
MTBF		198,200 hours			220Vac, full load, $T_a = 25^\circ\text{C}$ (MIL-HDBK-217F)
IP Grade		IP67			
T_c		90°C			
Warranty		5 years			$T_c: 75^\circ\text{C}$
Net Weight		2900g			
Dimension		272mm*125mm*44.5mm			L x W x H

NOTE: 1, All the parameters above are tested $T_a 25^\circ\text{C}$ 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: $91\text{K}\Omega/\text{N}$.

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SS-680VP-H 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	+90°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	EN 61347-1:2015 EN 61347-2-13:2014 EN 61347-2-13:2014/A1:2017	✓	
UKCA	EN 61347-1:2015+A1:2021 EN 61347-2-13:2014+A1:2017 EN 62493:2015 BS EN 61347-1:2015+A1:2021 BS EN 61347-2-13:2014+A1:2017 BS 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	EN55015:2013+A1:2015 FCC Part 15 Subpart B; ANSI C63.4:2014	Class B
Radiation Emission	EN55015:2013+A1:2015 FCC Part 15 Subpart B; ANSI C63.4:2014	Class B
Harmonic Current Emissions	IEC/EN 61000-3-2	Class C
Surge	IEC/EN 61000-4-5	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

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Safety Test Items:

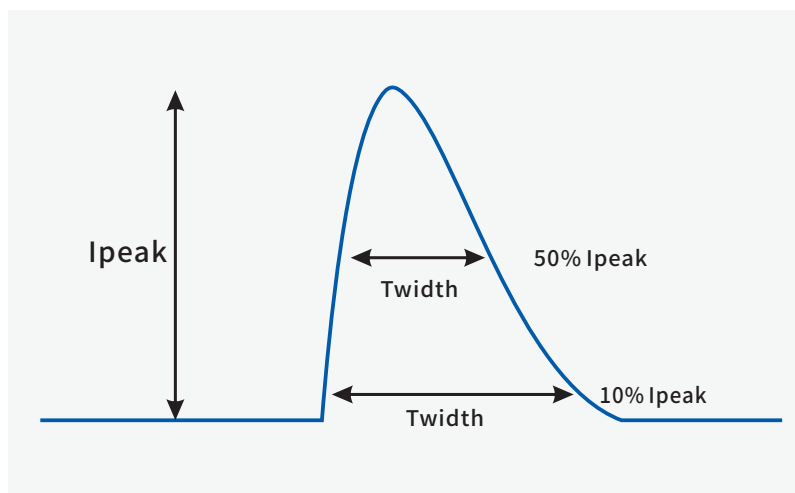
Safety Test Items	Technical Indicators			Remark
Insulation Requirements	UL Insulation Requirements	ENEC Insulation Requirements	CCC Insulation Requirements	
Input-Case	2U+1000	2U+1000	2U+1000	Basic insulation
Input-Dim	2U+1000	4U+2000	4U+2750	Reinforced insulation Bmodel
	2U+1000	2U+1000	2U+1000	Basic insulation Dmodel
Dim-Case	500Vac	500Vac	500Vac	Basic insulation Bmodel
	500Vac	2U+1000	2U+1000	Basic insulation Dmodel
Insulation Resistance	$\geq 10M\Omega$			Input-O/P,Test voltage:500Vdc
Ground Resistance	$\leq 0.1\Omega$			25A/1min
Leakage Current	$\leq 0.75mA$			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 (ACL and ACN), (V+ and V- and NTC+ and NTC-), (Dim+ and Dim - and Vaux+ and Vaux- and STB) when Hi-pot test.
3. The CCC withstand voltage test needs to disconnect the built-in lightning protection tube. According to the IEC 60598-1:14 standard section 10.2, the “built-in lightning protection tube” can be marked on the nameplate to disconnect the discharge tube on testing.

Performance Curves:

Input Inrush Current

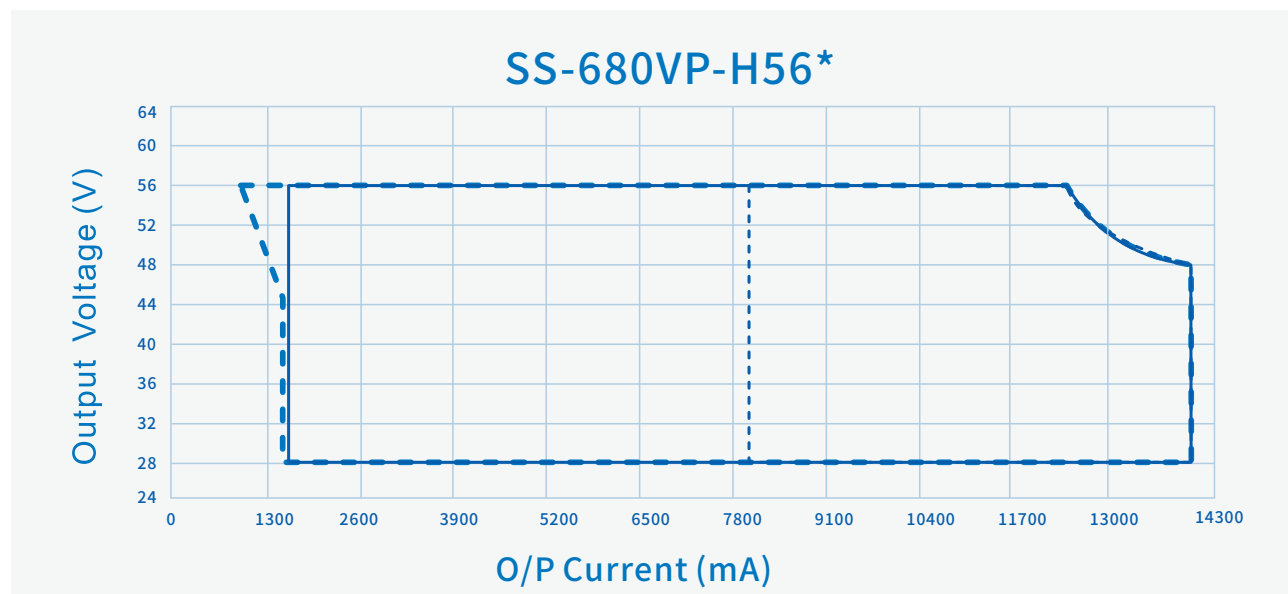


Vin	Ipeak	T(@10% of Ipeak)	T(@50% of Ipeak)
120Vac	12A	7.0mS	2.0mS
220Vac	21A	8.5mS	2.5mS
277Vac	27A	8.5mS	2.5mS

SS-680VP-H Series LED Driver

Performance Curves:

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

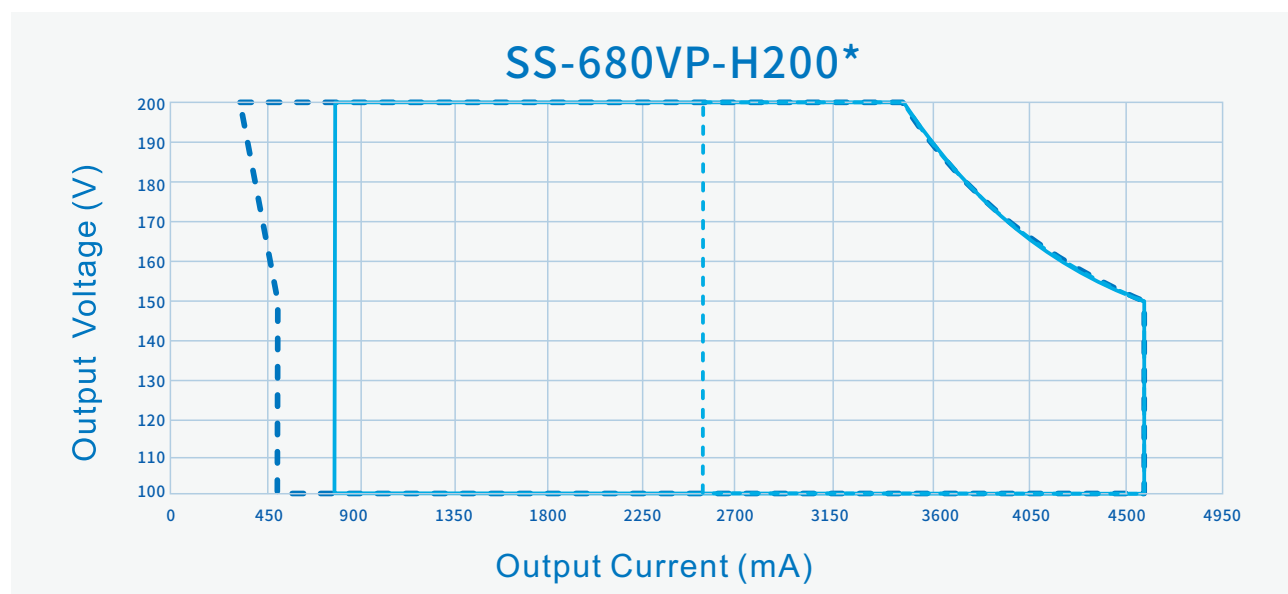


----- Dimming Window

———— AOC Window

..... AOC Window For DALI-2

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



----- Dimming Window

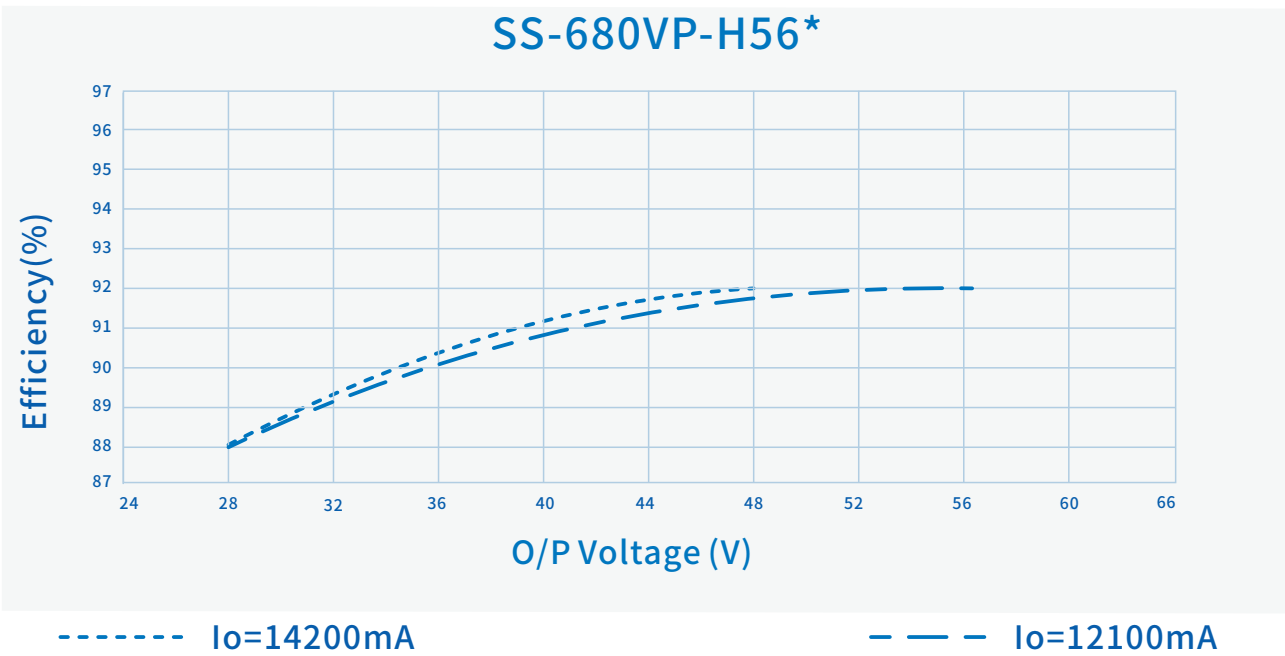
———— AOC Window

..... AOC Window For DALI-2

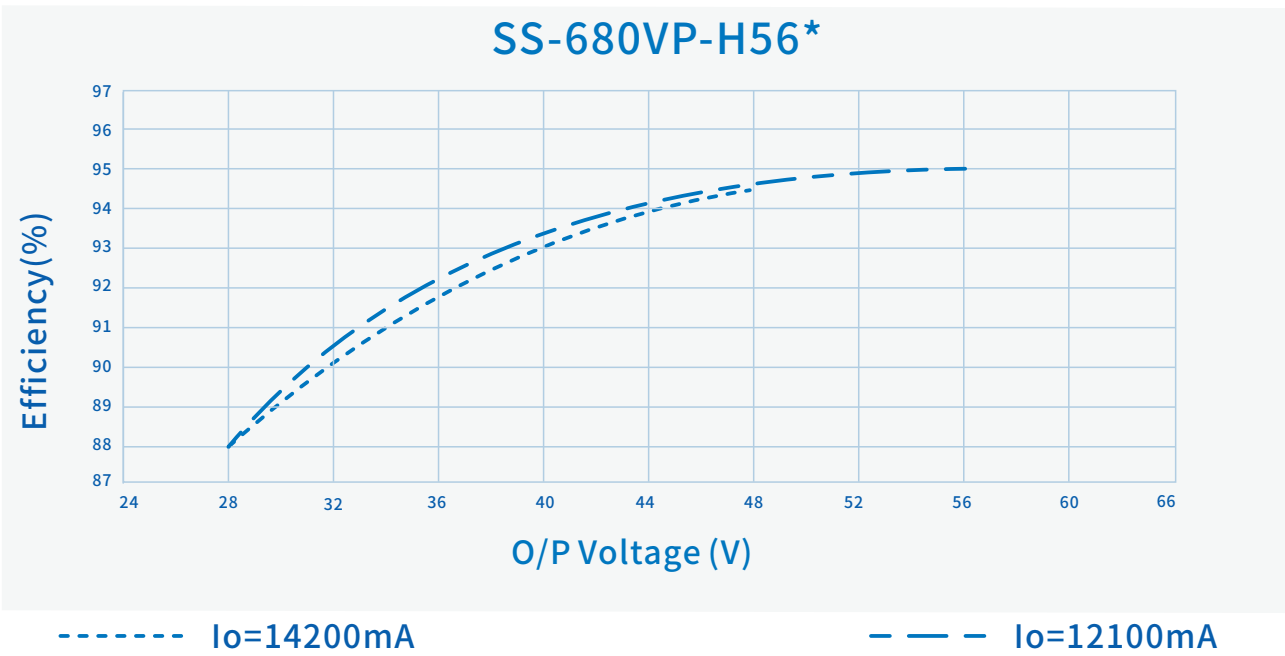
SS-680VP-H Series LED Driver

Performance Curves:

Efficiency Vs. O/P Voltage (Vin=120Vac)



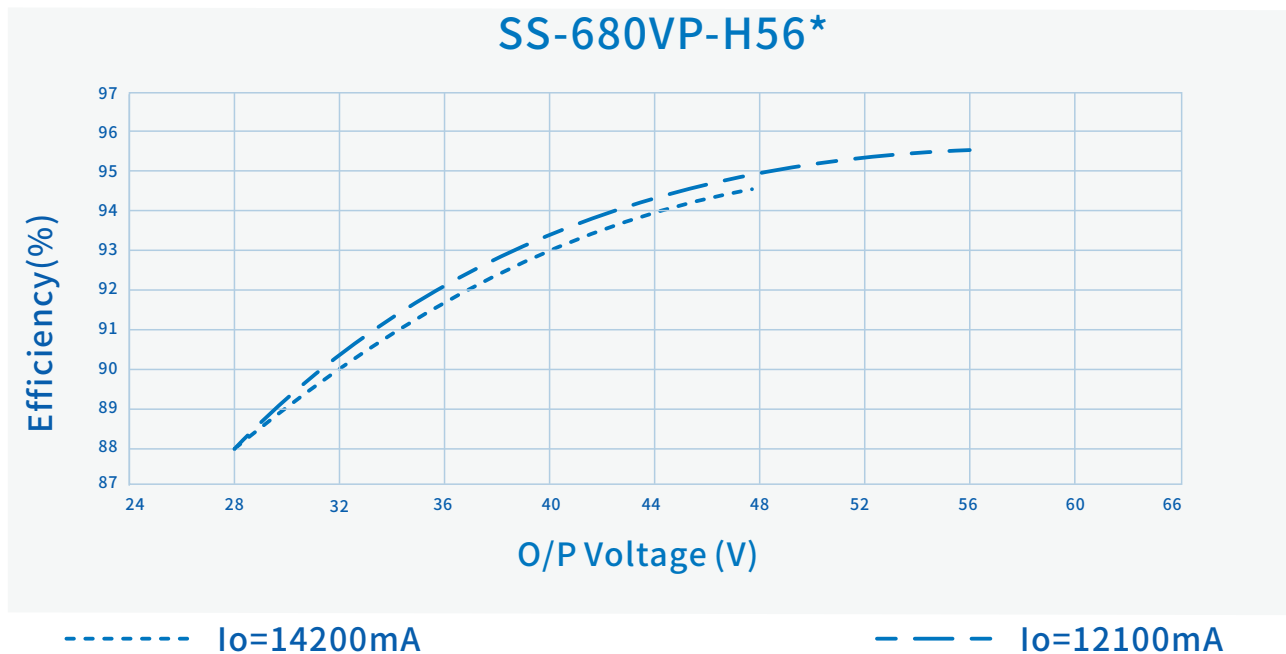
Efficiency Vs. O/P Voltage (Vin=220Vac)



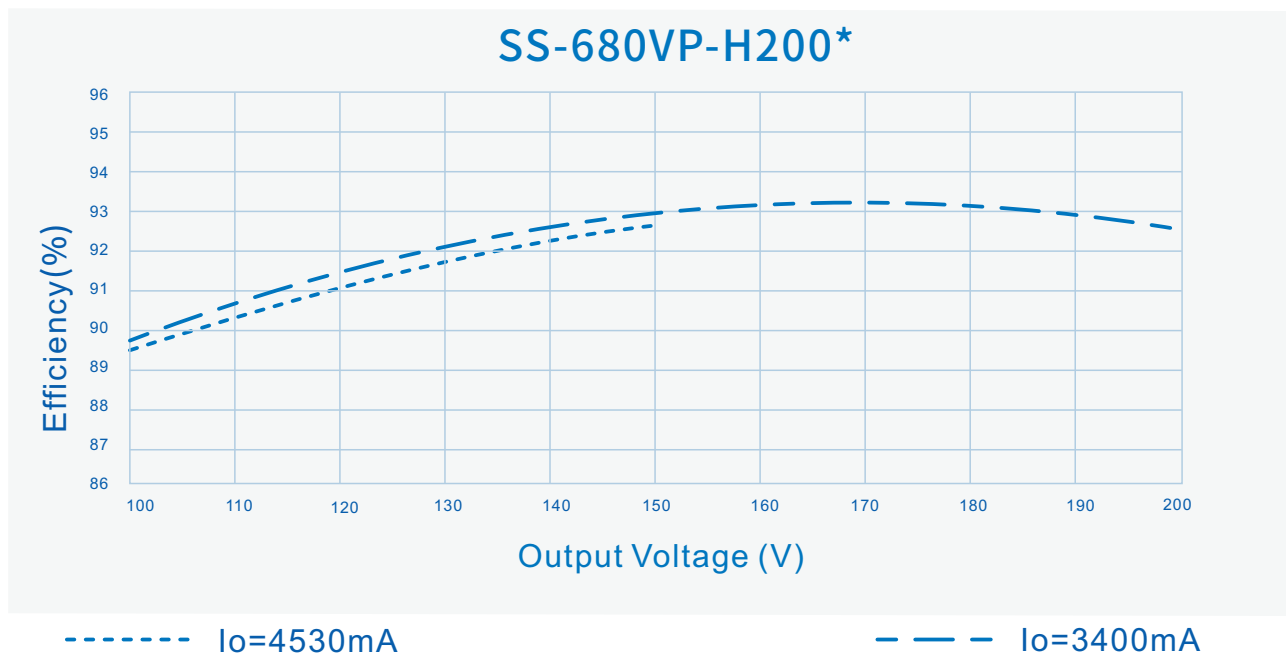
SS-680VP-H Series LED Driver

Performance Curves:

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



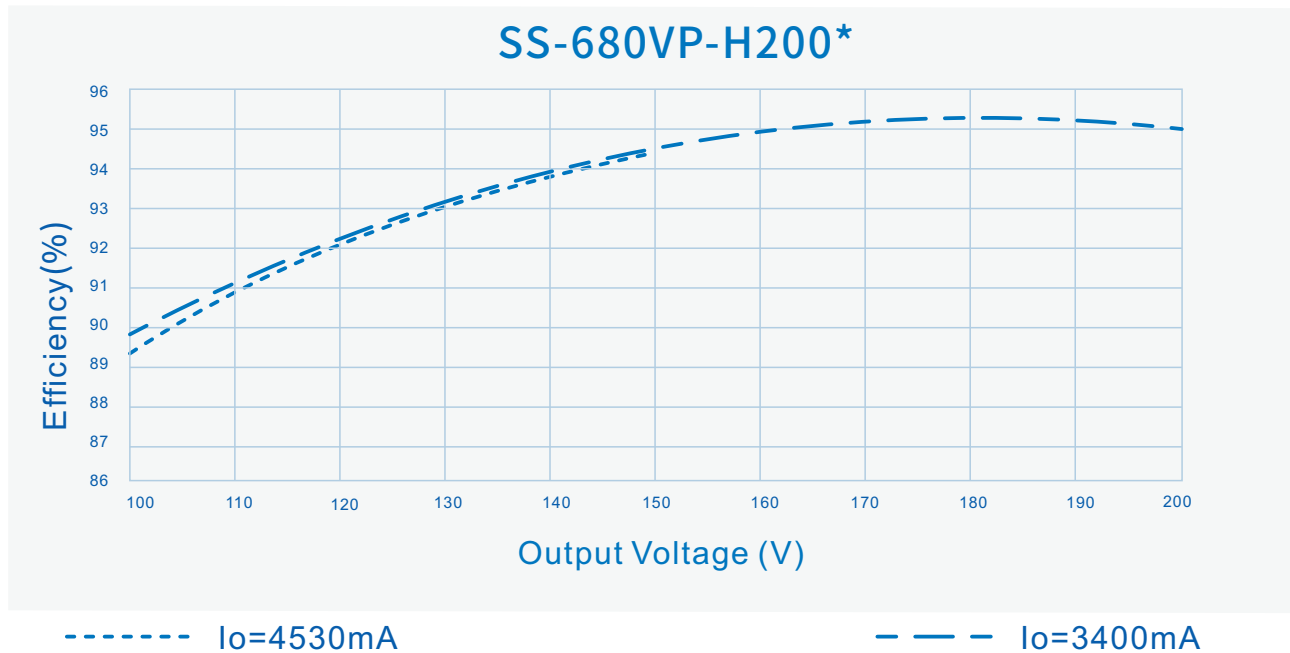
Efficiency Vs. O/P Voltage ($V_{in}=120V_{ac}$)



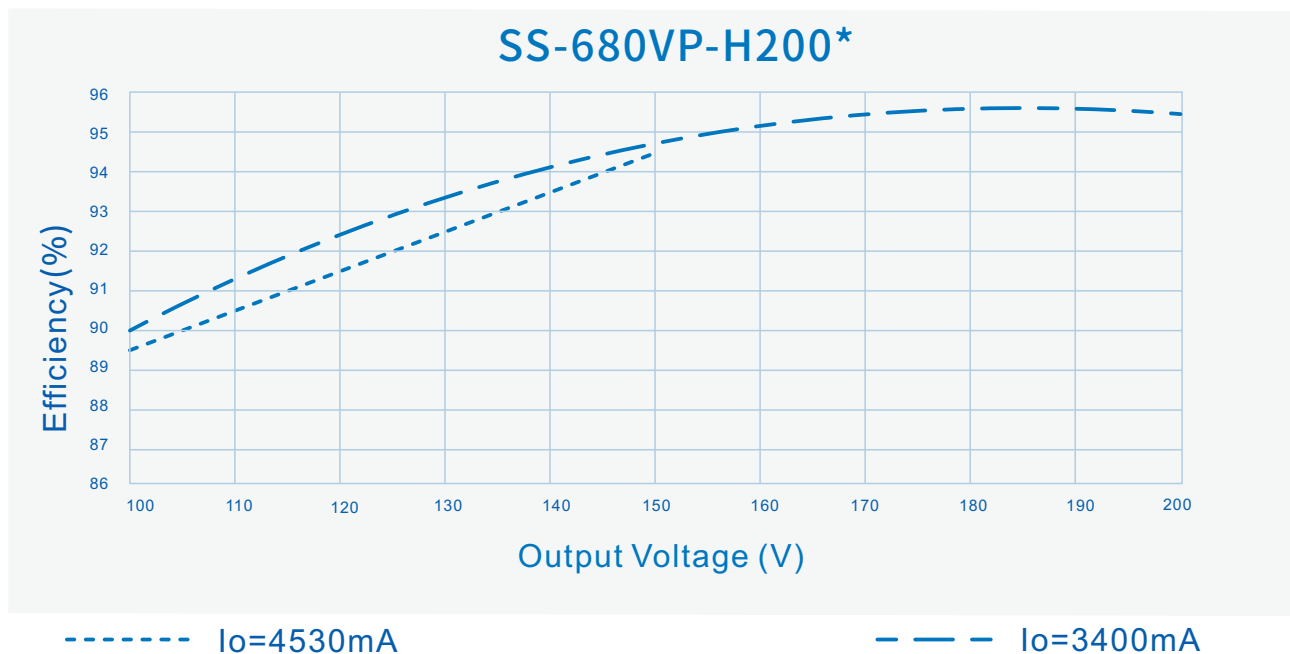
SS-680VP-H Series LED Driver

Performance Curves:

Efficiency Vs. O/P Voltage ($V_{in}=220V_{ac}$)



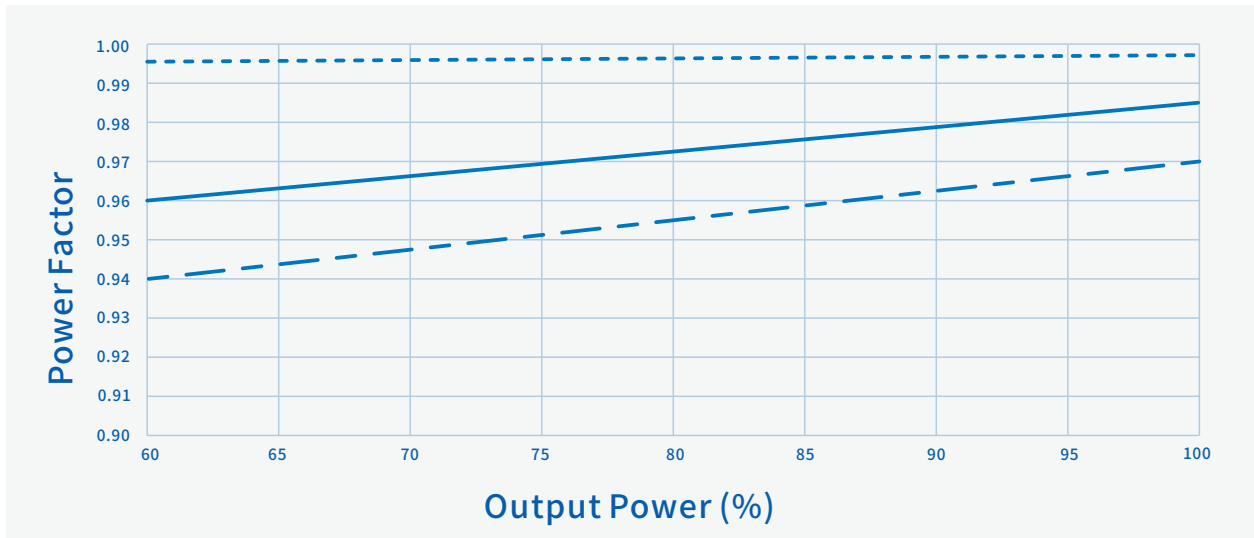
Efficiency Vs. O/P Voltage ($V_{in}=277V_{ac}$)



SS-680VP-H Series LED Driver

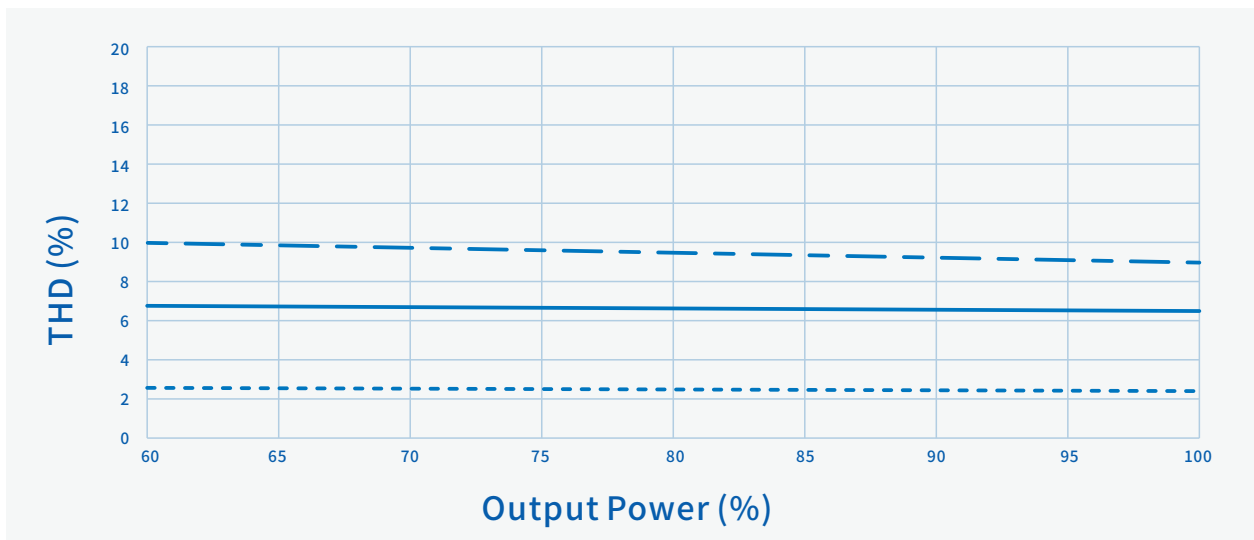
Performance Curves(SS-680VP-H56*):

Power Factor Vs. O/P Power



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

THD Vs. O/P Power

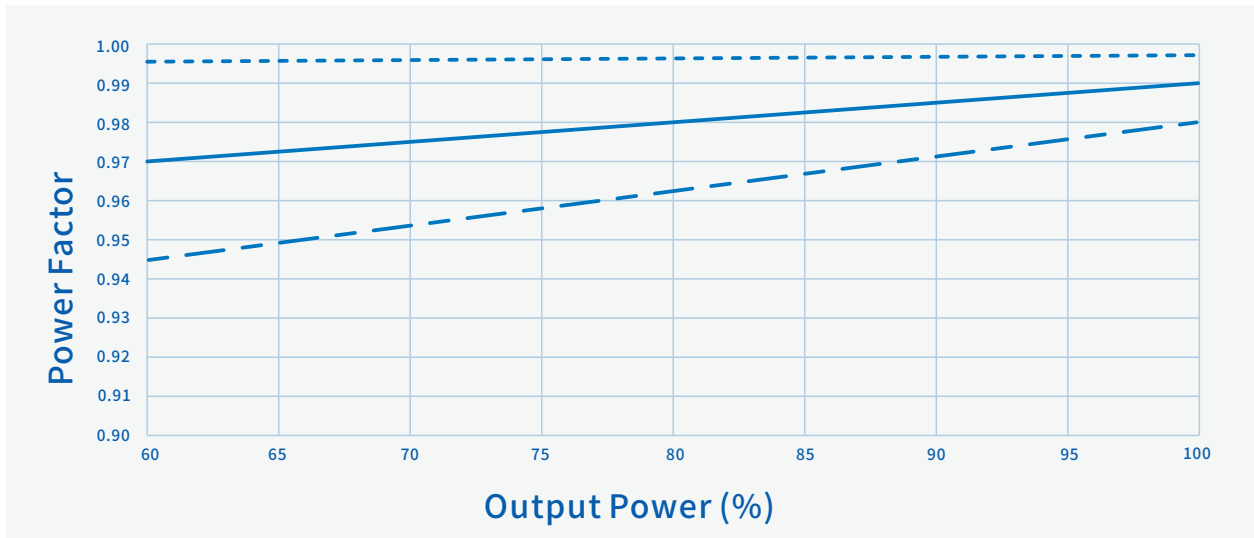


----- Vin=120Vac ————— Vin=220Vac - . - . Vin=277Vac

SS-680VP-H Series LED Driver

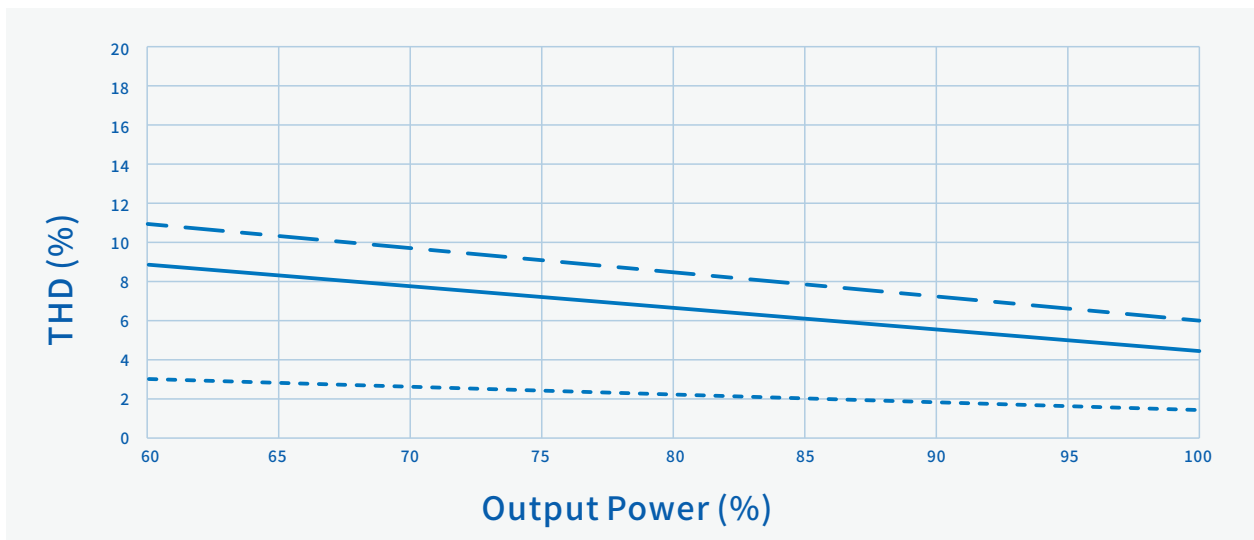
Performance Curves(SS-680VP-H200*):

Power Factor Vs. O/P Power



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

THD Vs. O/P Power

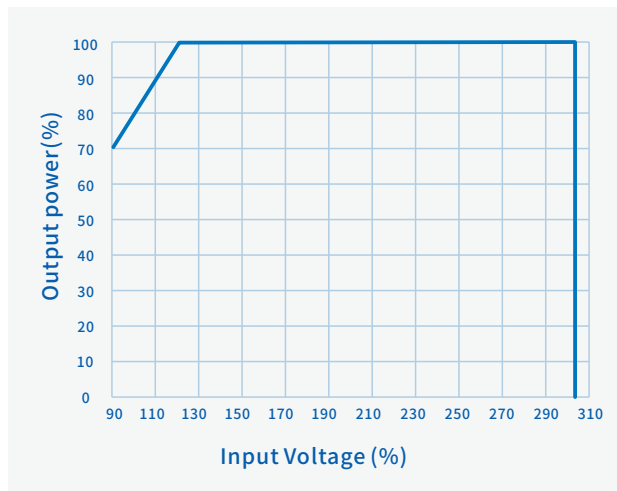


----- Vin=120Vac ————— Vin=220Vac - . - . Vin=277Vac

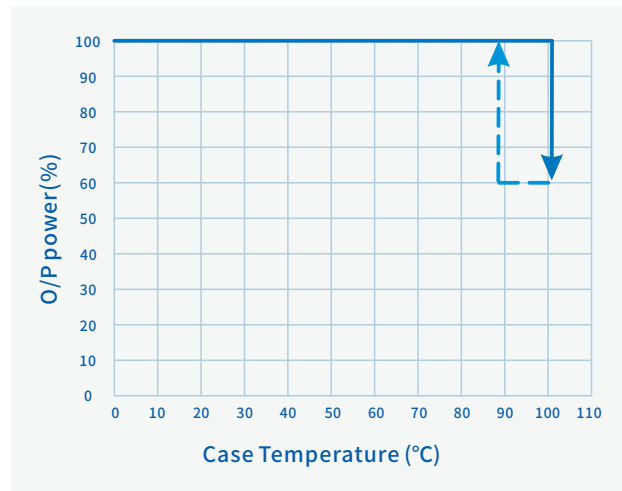
SS-680VP-H Series LED Driver

Performance Curves(SS-680VP-H56*):

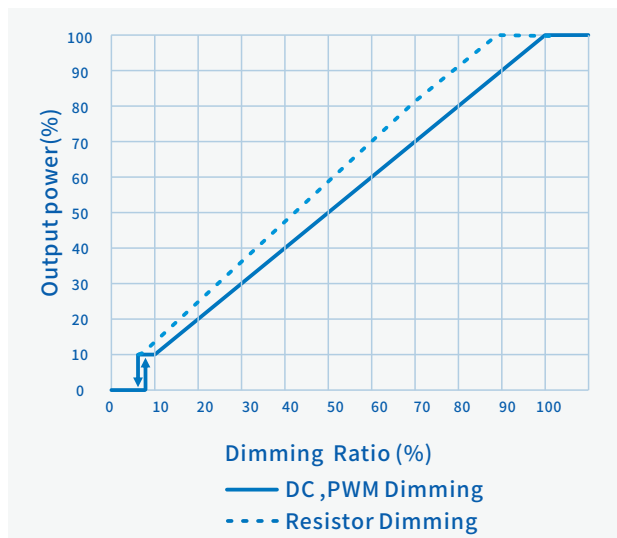
O/P Power Vs. Input Voltage



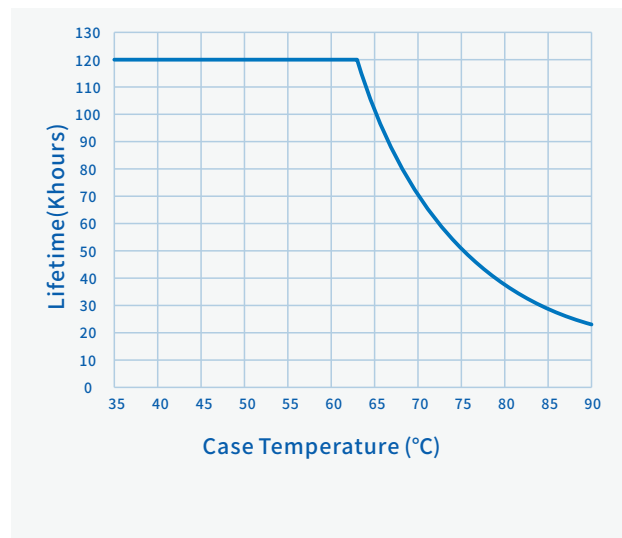
O/P Power Vs. Case Temperature



O/P Power Vs. Dimming



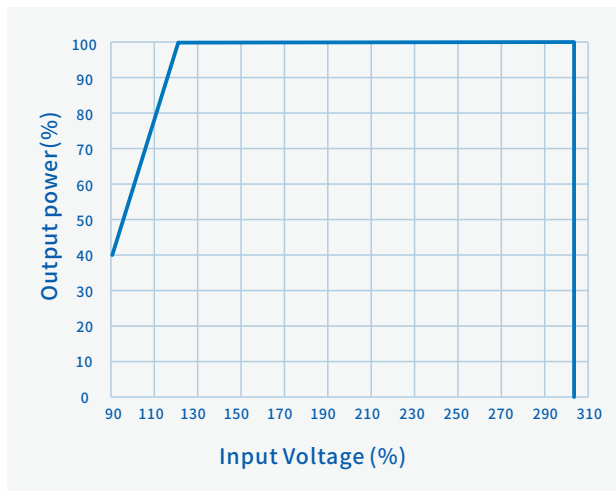
Life Time Vs. Case Temperature



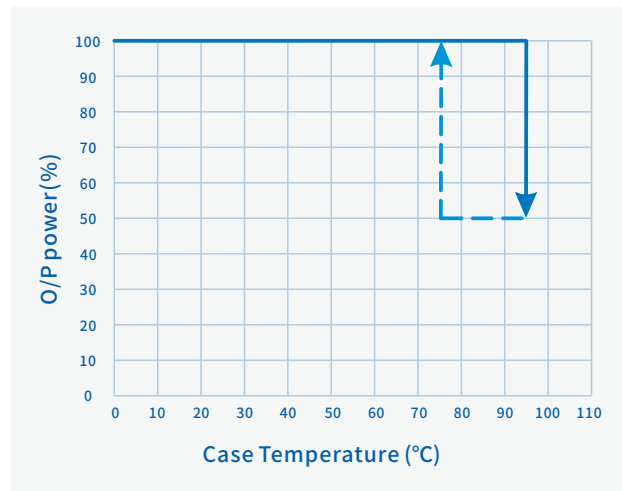
SS-680VP-H Series LED Driver

Performance Curves(SS-680VP-H200*):

O/P Power Vs. Input Voltage

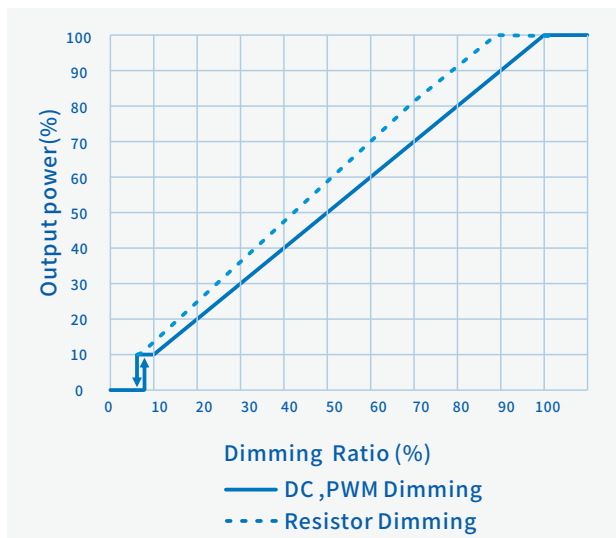


O/P Power Vs. Case Temperature

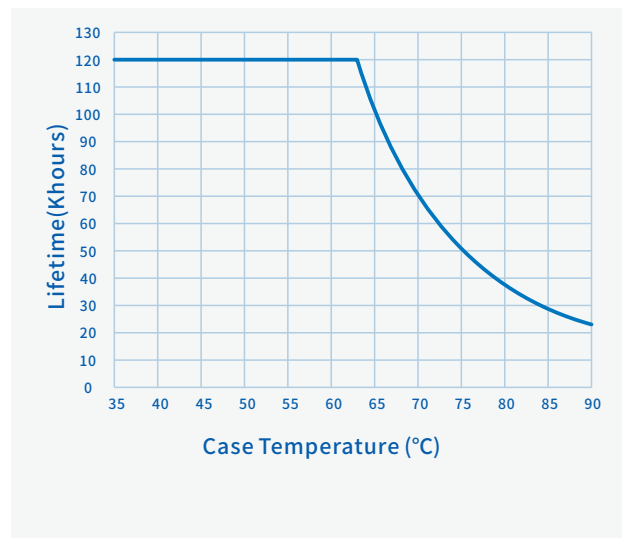


Note: 680VP-H200 is an active downgrade

O/P Power Vs. Dimming



Life Time Vs. Case Temperature



Constant Lumen Output

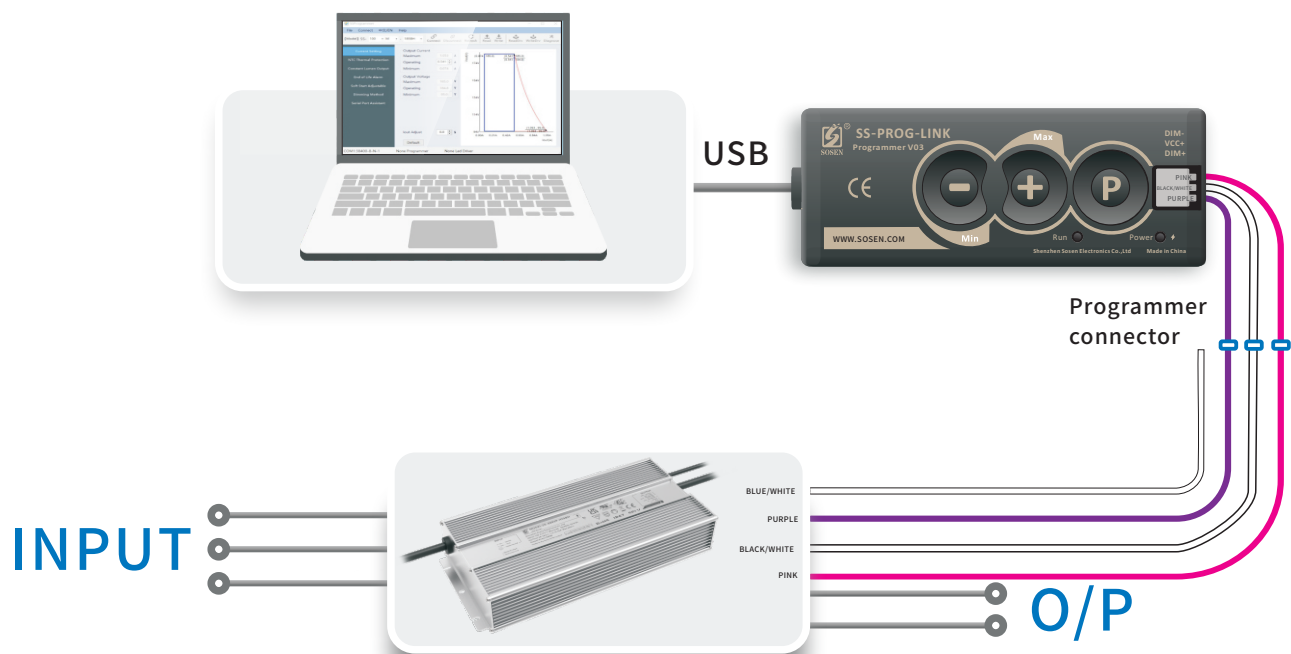
Constant Lumen Output are design to maintain fixture's stable output lumen by increasing driver's output current within driver's life span to counteract LED lumen degradation.

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:

1. Programming could be completed by off-line mode either without turn on the driver nor without PC, other than the traditional on-line mode.
2. The DALI-2 models only support setting the rated output current through SS-DALI-PUSH and does not support programming through SS-PROG-LINK with PC.

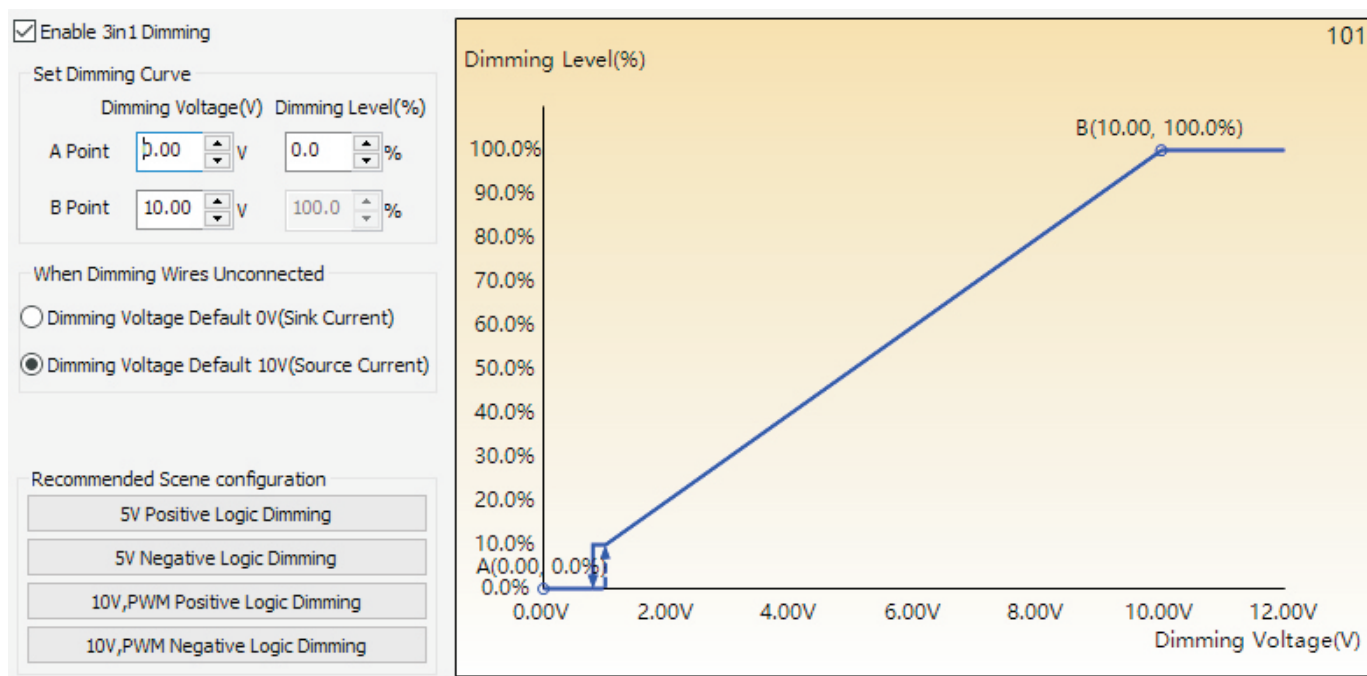
SS-680VP-H Series LED Driver

Parameter			Remark
Default setting	Positive logic dimming (0-10V)	Dimming voltage default 10V (source current)	
	Negative logic dimming (10-0V)	Dimming voltage default 0V (sink current)	
Dimming optional function	Positive logic dimming (0-10V)	Dimming voltage default 0V (sink current)	When the dimming wire is not connected, the LED driver output is the minimum (to be noted in the order)
		Resistance dimming not available	For parallel dimming applications with multiple LED drivers, it is recommended to use the sink current mode (to be noted in the order)

Note:

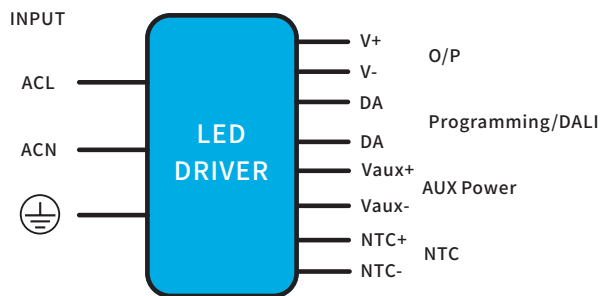
Select "Dimming voltage defaults to 10V (source current)" / "Dimming voltage defaults to 0V (sink current)", which needs to be set according to the dimmer used by the end user.

Settings Interface



SS-680VP-H Series LED Driver

Mechanical Characteristics



AC Input Cable(Exposed Length 450±10mm):

Global model: SJOW, 3*17AWG, O.D: 8.0mm, Brown: L, Blue: N, Yellow/Green: ⊕

UL model: SJTW, 3*16AWG, O.D: 8.5mm, Black:L, White:N, Green: ⊕

UL model: SJTW, 3*18AWG, O.D: 7.8mm, Black:L, White:N, Green: ⊕

DC O/P Cable(Exposed Length 250±10mm):

SS-680VP-H56*

Global model: SJOW, 2*14AWG, O.D: 8.8mm, Brown: V+, Blue: V-

UL model: SJTW, 2*14AWG, O.D: 9.0mm, Red: V+, Black: V-

SS-680VP-H200*

Global model: SJOW, 2*17AWG, O.D: 7.7mm, Brown: V+, Blue: V-

UL model: SJTW, 2*18AWG, O.D: 7.3mm, Red: V+, Black: V-

DH Model:

DA/AUX Power/Programming Cable (Exposed Length 220±10mm):

UL model: 21996, 4*22AWG, O.D: 5.6mm, Purple: DA, Pink: DA,

Black/White: Vaux+, Blue/White: Vaux-

DHN Model:

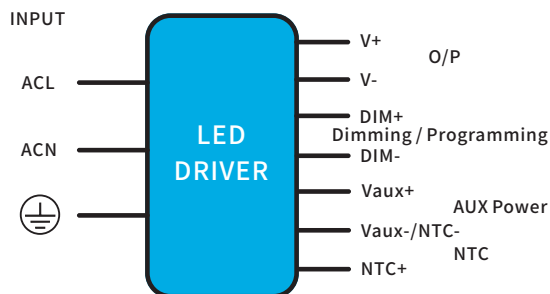
DA/AUX Power/Programming Cable (Exposed Length 220±10mm):

UL model: 21996, 4*22AWG, O.D: 5.6mm, Purple: DA, Pink: DA,

Black/White: Vaux+, Blue/White: Vaux-

NTC Cable(Exposed Length 300±10mm):

EU model: H05RN-F, 2*1.0mm², O.D: 7.0mm, Brown: NTC+, Blue: NTC-



AC Input Cable(Exposed Length 450±10mm):

Global model: SJOW, 3*17AWG, O.D: 8.0mm, Brown: L, Blue: N, Yellow/Green: ⊕

UL model: SJTW, 3*16AWG, O.D: 8.5mm, Black:L, White:N, Green: ⊕

UL model: SJTW, 3*18AWG, O.D: 7.8mm, Black:L, White:N, Green: ⊕

DC O/P Cable(Exposed Length 250±10mm):

SS-680VP-H56*

Global model: SJOW, 2*14AWG, O.D: 8.8mm, Brown: V+, Blue: V-

UL model: SJTW, 2*14AWG, O.D: 9.0mm, Red: V+, Black: V-

SS-680VP-H200*

Global model: SJOW, 2*17AWG, O.D: 7.7mm, Brown: V+, Blue: V-

UL model: SJTW, 2*18AWG, O.D: 7.3mm, Red: V+, Black: V-

BH Model:

DIM/AUX Power/Programming Cable (Exposed Length 220±10mm):

UL model: 21996, 4*22AWG, O.D: 5.6mm, Purple: DIM+, Pink: DIM-,

Black/White: Vaux+, Blue/White: Vaux-

BHN Model:

DIM/AUX Power/Programming/NTC Cable (Exposed Length 220±10mm):

UL model: 21996, 5*22AWG, O.D: 6.0mm, Purple: DIM+, Pink: DIM-,

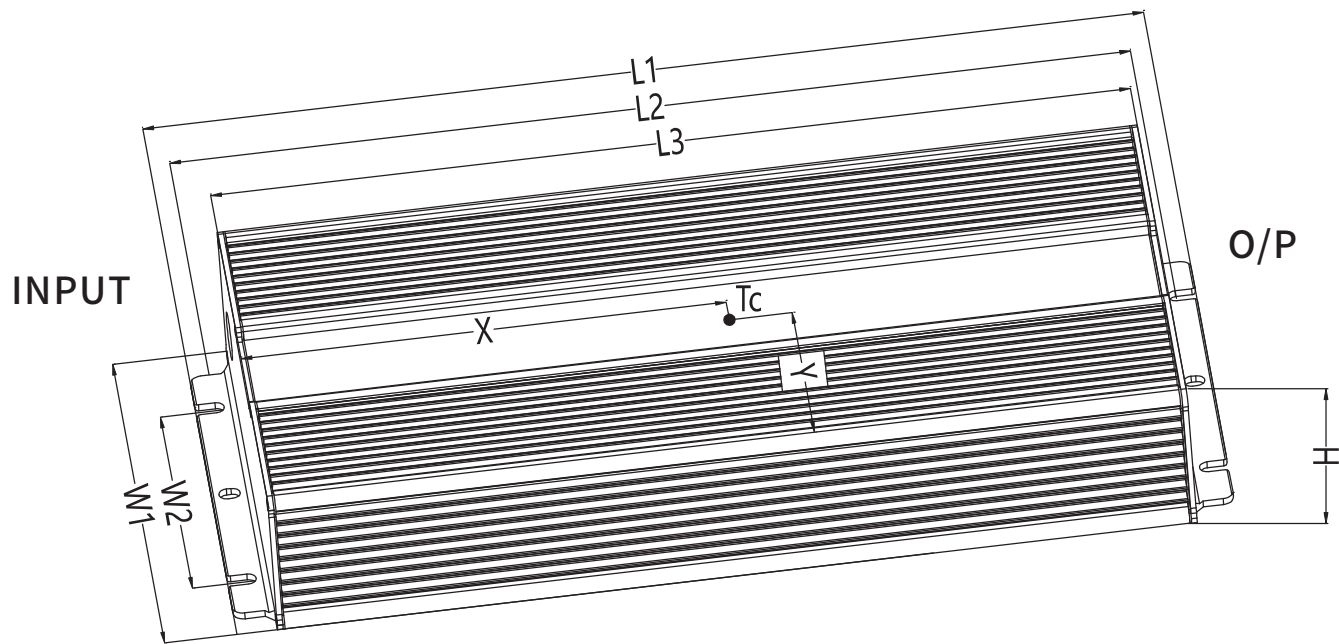
Black/White: Vaux+, Blue/White: Vaux-/NTC-, Red/White: NTC+

SS-680VP-H Series LED Driver

Mechanical Characteristics

Name Description	Standard Code	mm(In.)
Case Length	L3	250(9.84)
Case Width	W1	125(4.92)
Case Height	H	44.5(1.75)
Overall Length	L1	272(10.71)
Mounting Hole Length	L2	261(10.28)
Mounting Hole Width	W2	78(3.07)
TC Point Position	X	131(5.16)
TC Point Position	Y	61(2.4)

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 Cable:
Peeled length of cable:43±5mm, Tinned length of wire:10±2mm



SS-680VP-H Series LED Driver



Assembly Tips

1. Dimming or AUX Power tinned connectors should be capped if not used to avoid dimming or AUX Power parts damage from external signals.

Package

- Outside carton dimension: $L \times W \times H = 495\text{mm} \times 385\text{mm} \times 162\text{mm}$;
- 6PCS/Carton;
- Net weight/Piece: 2.9kg; Gross weight/Carton: 18.9kg;
- 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	2023/04/16	
V01	Add Models	2024/03/29	
V02	Modify Inrush Current and Safety Test Items	2024/11/02	