

SOSEN LED Driver, Your Smart Choice

Specifications

SS-250VH-A Series LED Driver

Model: SS-250VH-AXXX*

Description: 250W LED Driver

Rev.: V01

Release Date: 2024-11-29

SS-250VH-A Series LED Driver

SOSEN
LED DRIVER



LED DRIVER

VH-A Series



Features:

- Efficiency up to 94.5%
- Output current adjustment method:
Dimmer line programming
- Isolated dimming: 0-10V, PWM, Resistor
- TIM, ELA, CLO
- Suitable for Class I / II lamps
- Protections: SCP/OTP/OVP/OPP
- Surge protection: CM: 10kV, DM: 6kV
- IP67
- Warranty: 5 years



CE RoHS IP67

Description:

VH-A Series are constant current LED Driver with wide O/P voltage range and adjustable O/P current by program. LED luminaries manufactures can easily design luminaries and reduce cost.

Applications:

High Pole lighting, High bay lighting, Stadium lighting, Plant lighting, Fish lighting, Street lighting, Tunnel lighting, Stage lighting

Model List:

Model	AC Input Range	Max. Pout	Vout Range	Full Power Vo Range	Iout	Default Current	THD(Typ.)	PF(Typ.)	Eff.(Typ.)	Max.Tc
SS-250VH-A358*	100-305Vac	250W	179-358V	238-358V	0.1-1.05A	0.7A	8%	0.98	94.5%	90°C

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.

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“★” Means Additional Function

Suffix	0-10V/PWM /Resistor Or 10-0V (suffix:B)	DALI (suffix:D)	NFC	Class I	Class II	Remark
B	✓			✓		
BE	✓				✓	

Input Characteristics:

Parameter	Min.	Typ.	Max.	Remark
AC Input Range	100Vac	120-277Vac	305Vac	Reference Derating Curve
Input Frequency Range	47Hz	50/60Hz	63Hz	
Max Input Current			2.8A	120Vac, Full load
Max Input Power			288W	120Vac, Full load
Max Inrush Current(120Vac)			75A	Cold start
Max Inrush Current(220Vac)			100A	Cold start
Max Inrush Current(277Vac)			110A	Cold start
No Load Power			7.5W	220Vac/50Hz, No load
Power Factor	0.95	0.97		220Vac/50Hz, Full load
	0.90			120-277Vac, 70-100% load
THD		8%	10%	220Vac/50Hz, Full load
			20%	120-277Vac, 70-100% load

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Output Characteristics(SS-250VH-A358*):

Parameter	Min.	Typ.	Max.	Remark
O/P Voltage Range	179V		358V	Power derated @179-238V
Rated O/P Voltage	238V		358V	Po=Vo*Io=250W, Full load
Rated O/P Current	0.7A		1.05A	1.05A for 238V,0.7A for 358V
Adj. O/P Current (AOC)Range	0.1A		1.05A	
No Load Voltage			400V	
Efficiency @120Vac	89.5%	91.5%		Output 358V/0.7A, Test after burn-in
Efficiency @220Vac	92.0%	94.0%		Output 358V/0.7A, Test after burn-in
Efficiency @277Vac	92.5%	94.5%		Output 358V/0.7A, Test after burn-in
O/P Current Tolerance	-5%		+5%	Full load
O/P Current Ripple(PK-AV)		5%	10%	Full load
Start-up Current Overshoot			10%	Full load
Start-up Time			1.0S	120Vac,Full load
			0.5S	220Vac,Full load
Line Regulation	-2%		+2%	Full load
Load Regulation	-2%		+2%	
Temperature Coefficient		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

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Other Characteristics:

Parameter		Min.	Typ.	Max.	Remark
0-10V Positive Dimming (Configurable)	Dim Vmax	0V		12V	DIM+ source current 110uA. Dimming prohibits reverse connection Configurable to 0-5V
	Dim Range	10%Iomax		100%loset	
	Rec.Dim Range	0V		10V	
10-0V Negative Dimming (Configurable)	Rec.Dim Range	0V		10V	DIM+ sink current I _{max} 40uA. Dimming prohibits reverse connection Configurable to 5-0V
PWM Dimming (Optional)	PWM High	9.8V		10.2V	DIM+ source current 110uA. Dimming prohibits reverse connection
	PWM Low	0V		0.3V	
	Frequency	1KHz		2KHz	
	PWM Duty	0%		100%	
Resistor Dimming (Optional)	Resistance	0Kohm		100Kohm	Not available with negative logic
	Dim Range	10%Iomax		100%loset	DIM+ source current 110uA .
0-10V Dim to Off	Dim off	0.7V	0.8V	0.9V	If the led is less than maximum rated output voltage of 75%,the luminaries may possibly have slight light when dim-to-off. Thus the whole lighting system needs to be tested
	Dim on	0.8V	0.9V	1.0V	
10-0V Dim to Off	Dim off	9.0V	9.2V	9.4V	
	Dim on	8.8V	9.0V	9.2V	
Timing Curve(Optional)		By programming			Set by program
Lifetime(Tc≤80°C)		≥50,000 hours			80% load
MTBF		201,850 hours			220Vac,Full load, Ta=25°C (MIL-HDBK-217F)
IP Grade		IP67			
Tc		90°C			
Warranty		5 years			Tc: 80°C
Net Weight		850g			
Dimension		180mm*66mm*37mm			L x W x H

Note:

- 1.All the parameters above are tested Ta 25°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: 91KΩ/N.

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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
ENEC	EN 61347-1:2015/A1:2021 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	✓	
EAC	EN 61347-2-13:2014 EN61347-1:2008+A1:2011+A2:2013 TP TC 004/2011, TP TC 020/2011		
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 GB/T 17743	
Radiation Emission	EN55015:2013+A1:2015 GB/T 17743	
Harmonic Current Emissions	IEC/EN 61000-3-2 GB/T 17625.1	Class C
Surge	IEC/EN61000-4-5	DM: 6kV,CM: 8kV,Criterion B
	EN61547	DM: 6kV,CM: 10kV,Criterion B

Note: For BE model, to ensure surge protection performance, the casing must be reliably grounded.

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Safety Test Items

B Model

Safety Test Items	Technical Indicators		Remark
Insulation Requirements	ENEC Insulation Requirements	CCC Insulation Requirements	
Input-Case	2U+1000Vac	/	Basic insulation
Input-Dim	4U+2000Vac	/	Reinforced insulation
Insulation Resistance	$\geq 10M\Omega$		Test voltage:500Vdc
Ground Resistance	$\leq 0.1\Omega$		25A/1min
Leakage Current	$\leq 0.75mA$		277Vac

BE Model

Safety Test Items	Technical Indicators		Remark
Insulation Requirements	ENEC Insulation Requirements	CCC Insulation Requirements	
Input-Case	4U+2000Vac	/	Reinforced insulation
Input-Dim	4U+2000Vac	/	Reinforced insulation
Insulation Resistance	$\geq 10M\Omega$		Test voltage:500Vdc
Ground Resistance	$\leq 0.1\Omega$		25A/1min
Leakage Current	$\leq 0.75mA$		277Vac

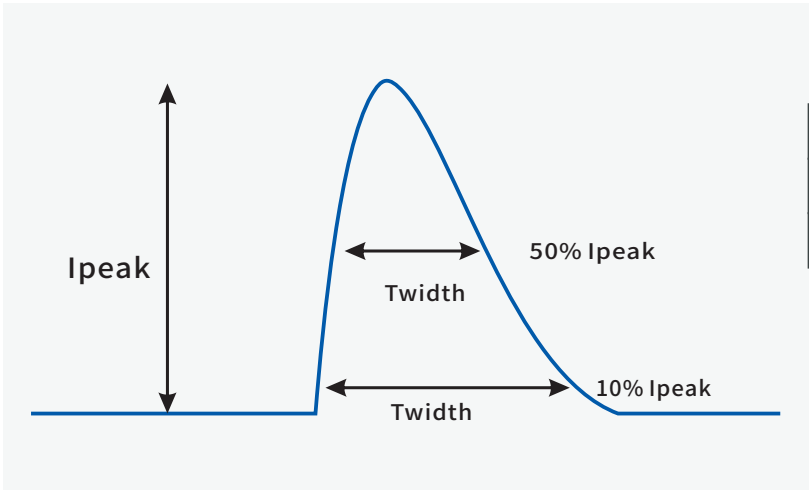
Note:

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 of components.
2. Please short (ACL and ACN), (V+ and V-), (Dim+ and Dim -)when Hi-pot test.

SS-250VH-A Series LED Driver

Performance Curves:

Input Inrush Current

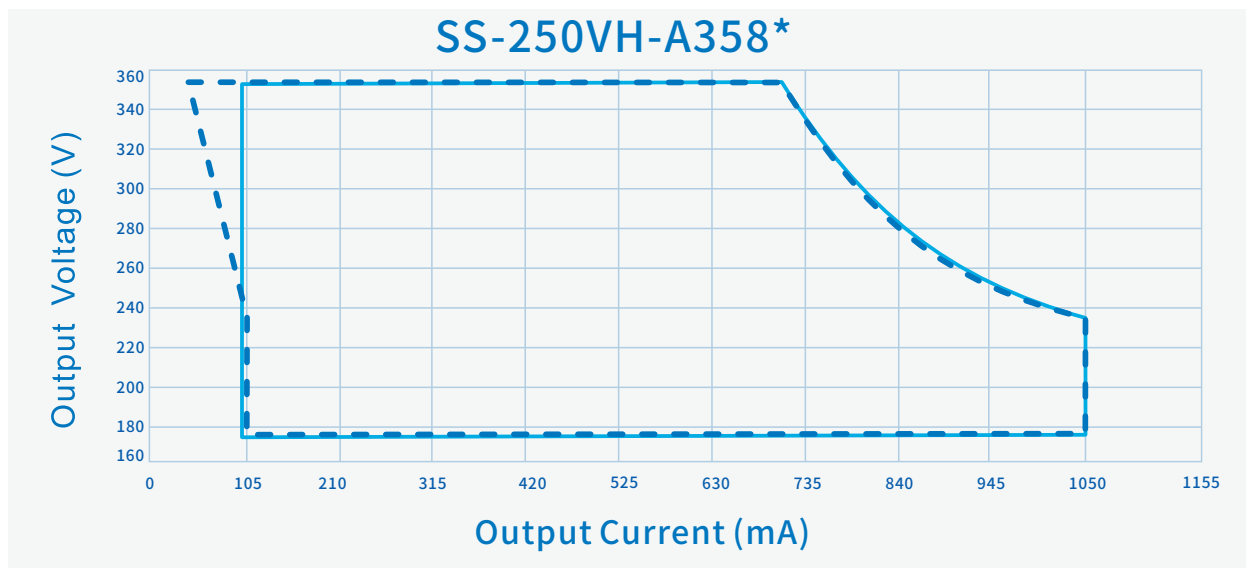


Vin	Ipeak	T(@10% of Ipeak)	T(@50% of Ipeak)
120Vac	75A	700uS	280uS
220Vac	100A	560uS	250uS
277Vac	110A	600uS	300uS

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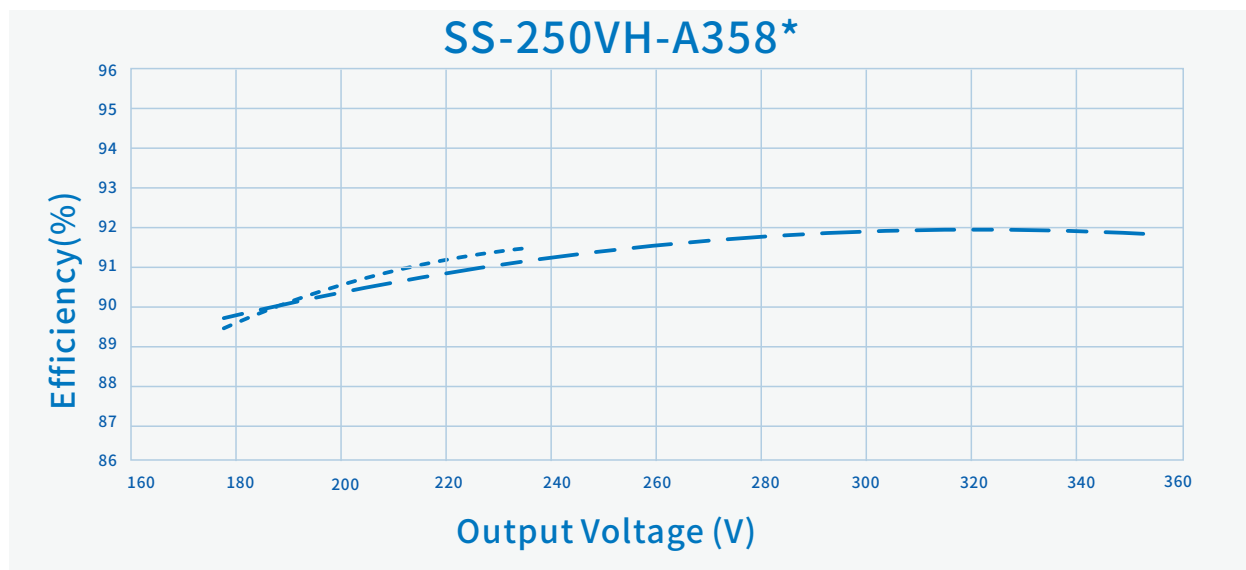
Performance Curves:

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



----- Dimming Window ————— AOC Window

Efficiency Vs. Output Voltage (Vin=120Vac)

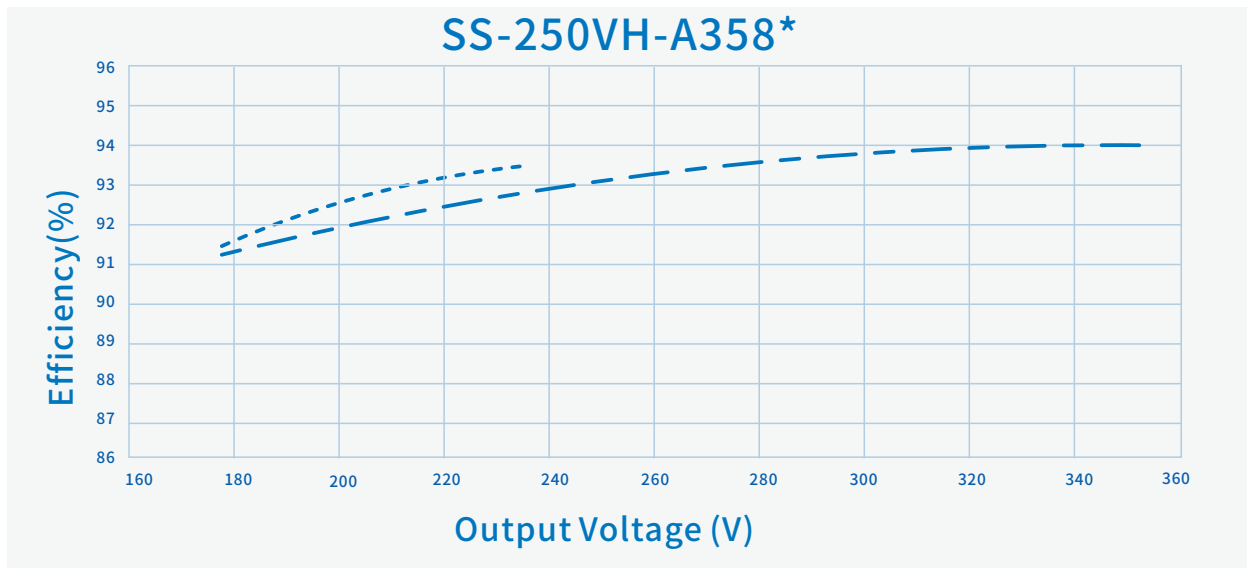


----- Io=1050mA — — — — Io=700mA

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Performance Curves:

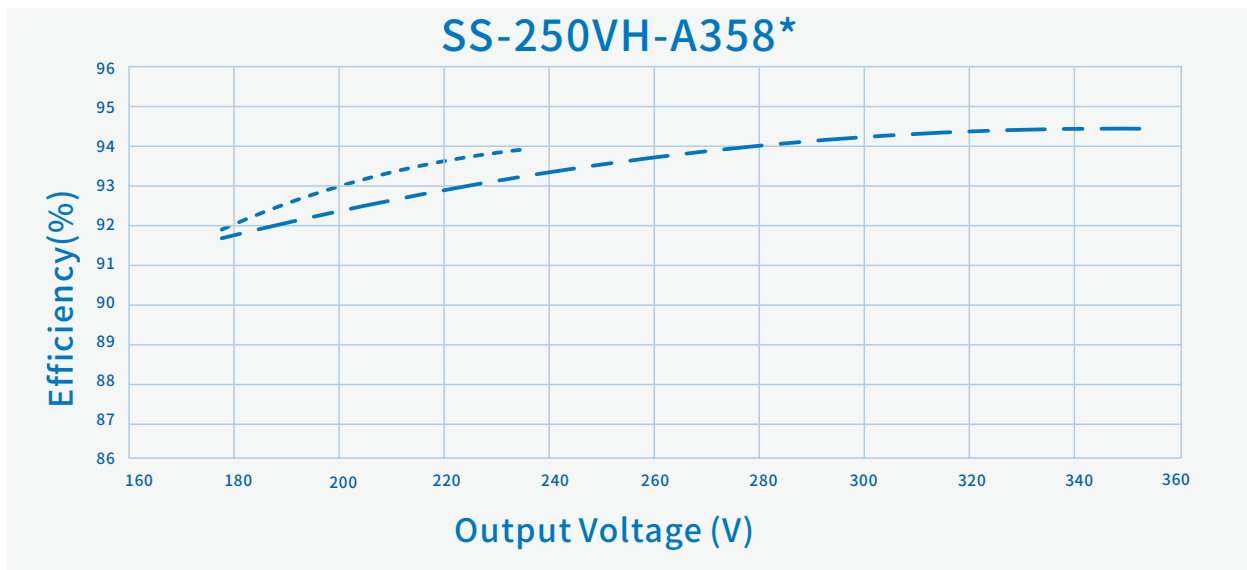
Efficiency Vs. Output Voltage ($V_{in}=220V_{ac}$)



----- $I_o=1050mA$

- - - - $I_o=700mA$

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



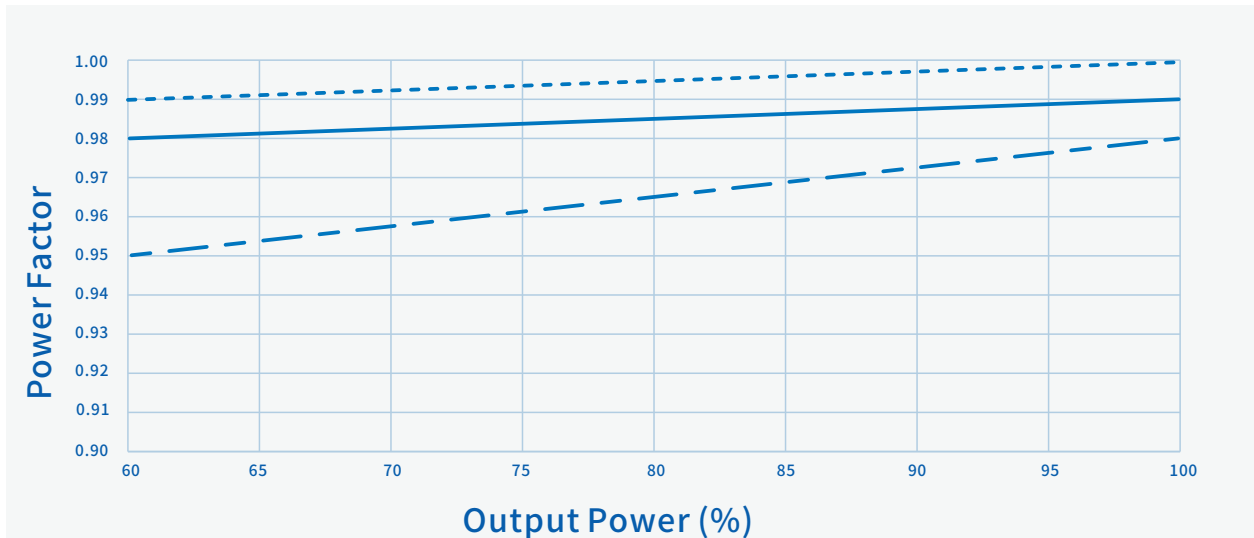
----- $I_o=1050mA$

- - - - $I_o=700mA$

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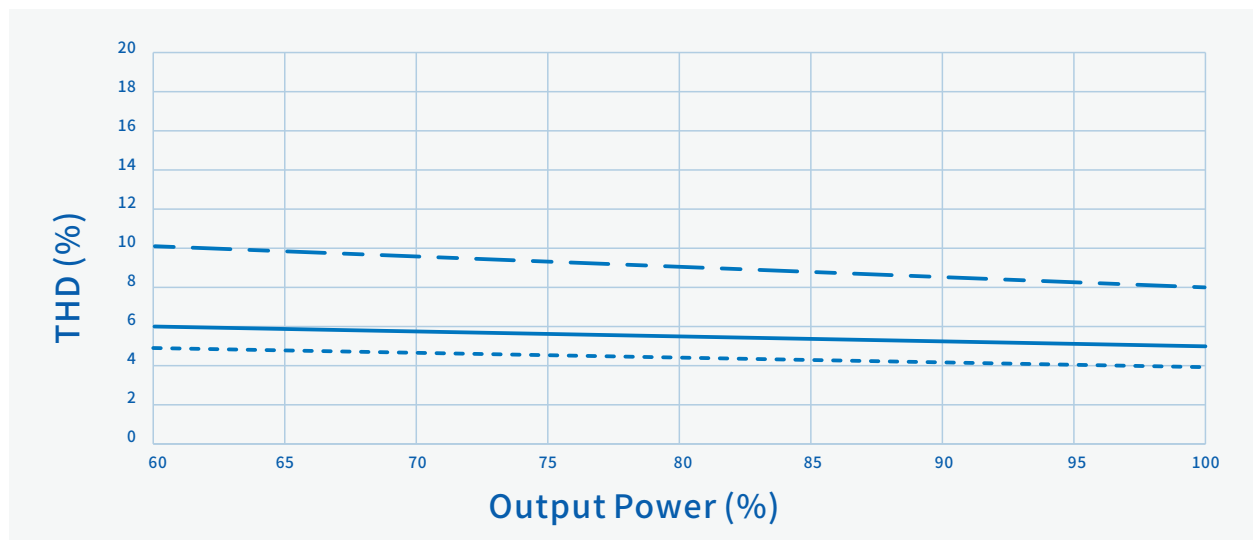
Performance Curves:

Power Factor Vs. Output Power



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

THD Vs. Output Power



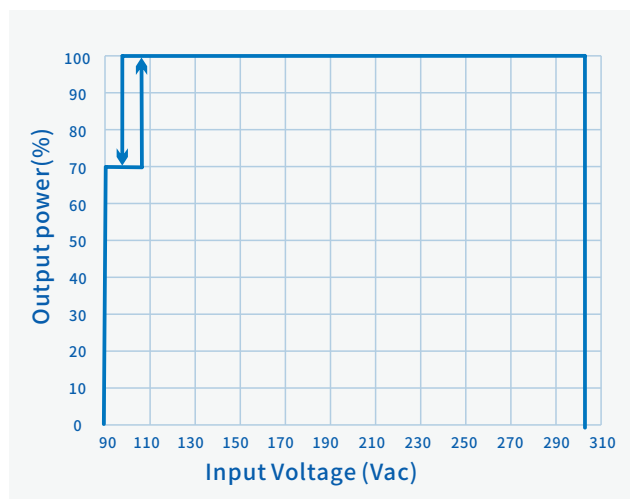
----- Vin=120Vac ————— Vin=220Vac - . - . Vin=277Vac

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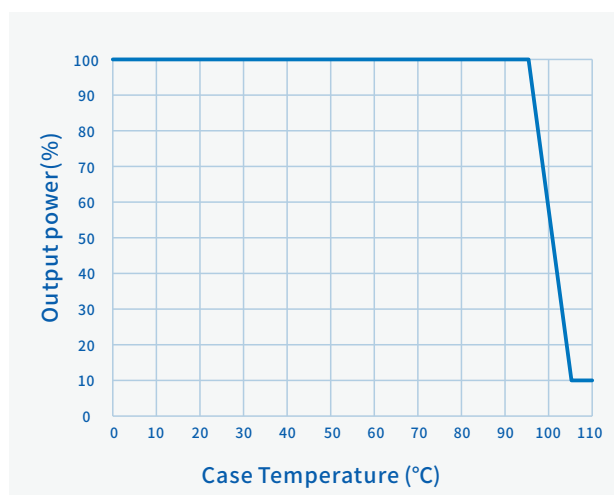
Performance Curves:

Derating Curve

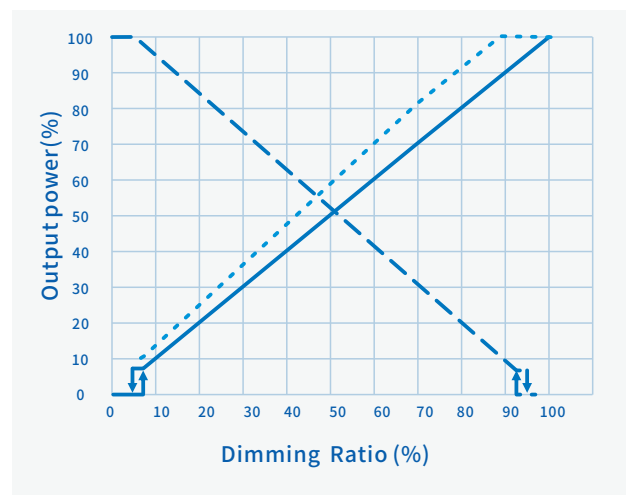
(Output power Vs. Input Voltage)



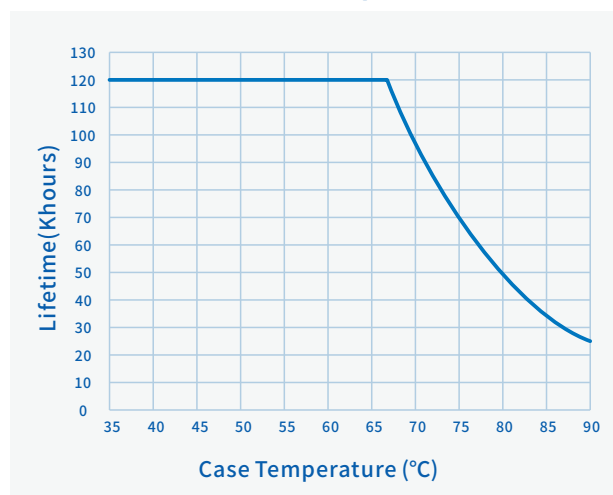
Output power Vs. Case Temperature



O/P Power Vs. Dimming



Lifetime Vs. Case Temperature



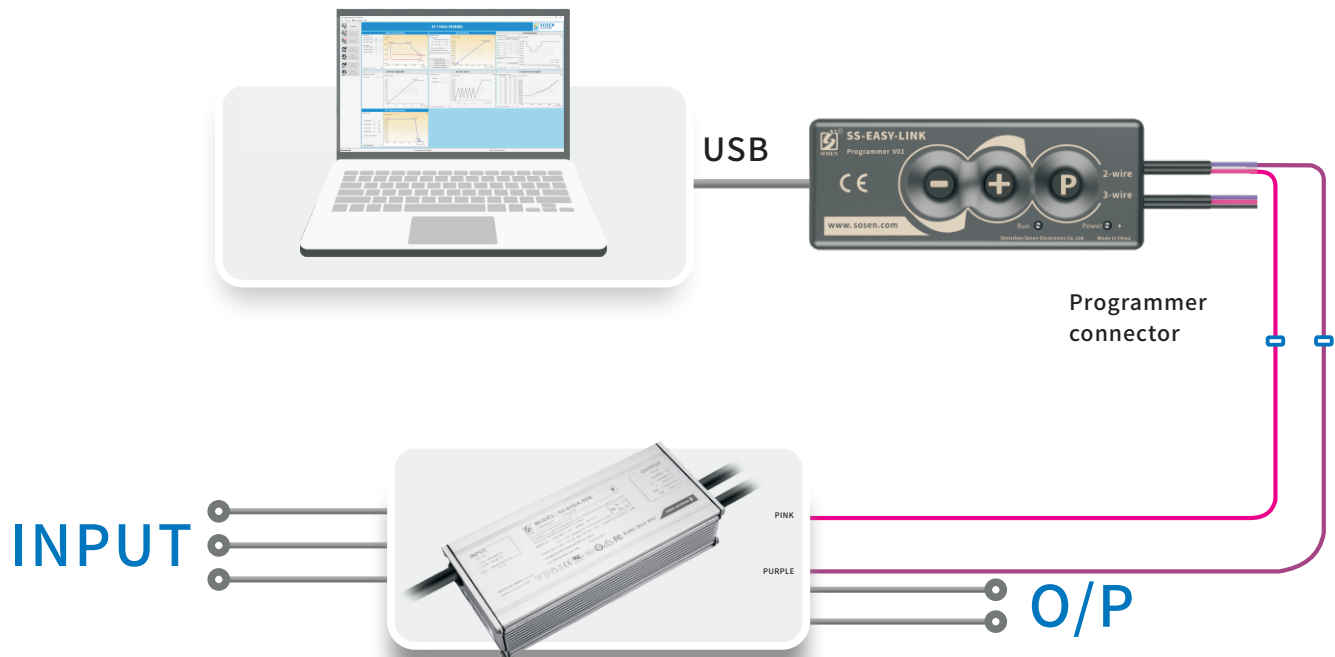
- 0-10V,0-5V,PWM
- - - 10-0V,5-0V
- Resistor Dimming(100KΩ)

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.



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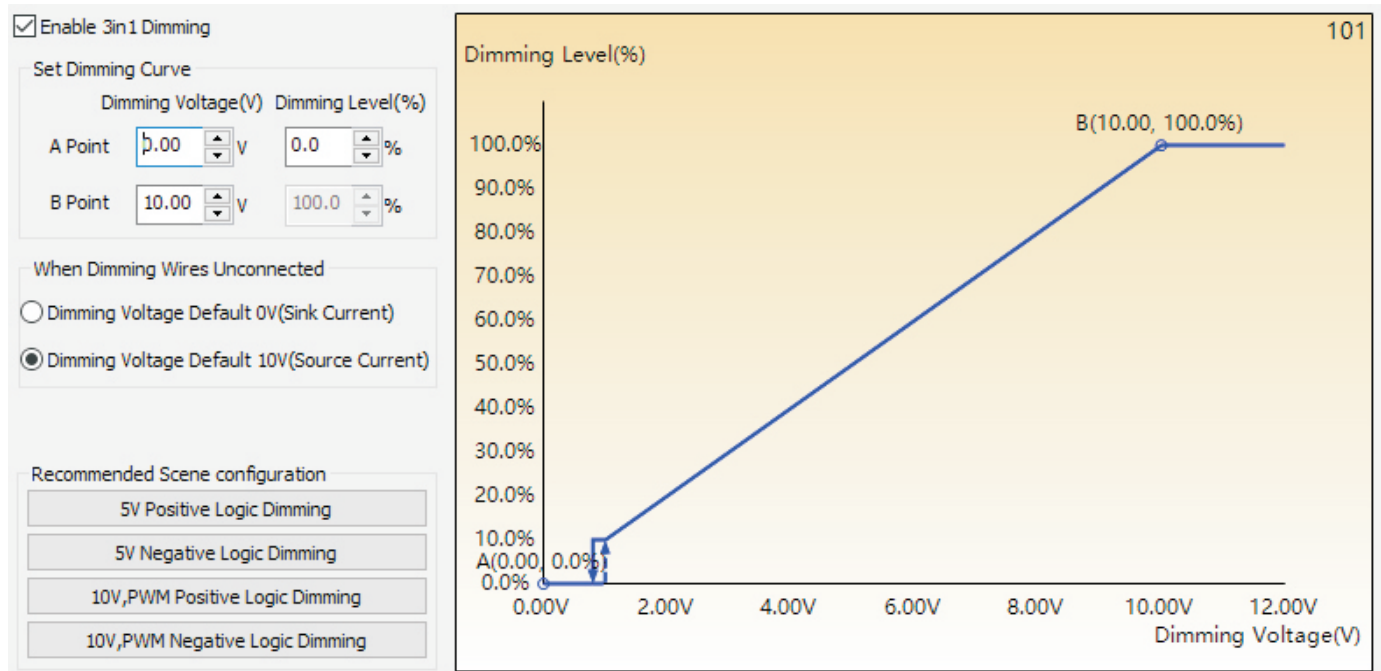
Dimming parameter settings

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.

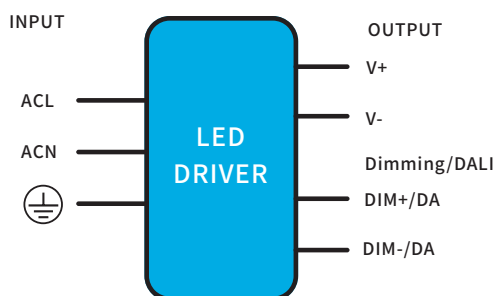
Settings Interface



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Mechanical Characteristics

Wire gauge (B model)



AC Input Cable(Exposed Length $450\pm 10\text{mm}$):

EU model: H05RN-F, 3*1.0mm², O.D: 7.3mm, Brown: L, Blue: N, Yellow/Green: $\oplus$

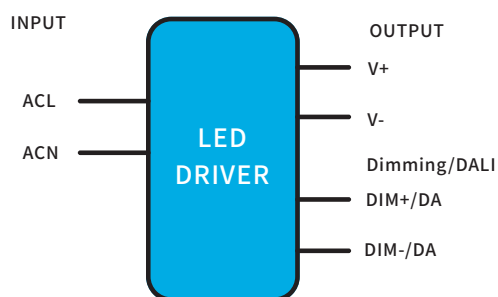
DC Output Cable(Exposed Length $250\pm 10\text{mm}$):

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

DIM Cable(Exposed Length $220\pm 10\text{mm}$):

UL model: STYLE 21996, 2*22AWG, O.D: 4.9mm, Purple: DIM+/DA, Pink: DIM-/DA

Wire gauge (BE model)



AC Input Cable(Exposed Length $450\pm 10\text{mm}$):

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

DC Output Cable(Exposed Length $250\pm 10\text{mm}$):

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

DIM Cable(Exposed Length $220\pm 10\text{mm}$):

UL model: STYLE 21996, 2*22AWG, O.D: 4.9mm, Purple: DIM+/DA, Pink: DIM-/DA

NOTE:

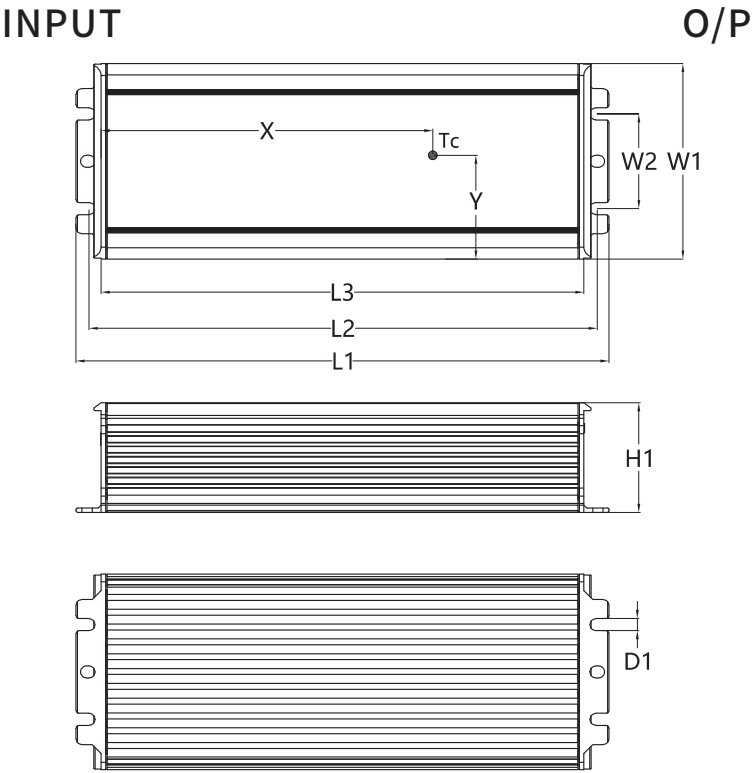
AC Input Cable, DC O/P Cable, DIM/AUX Power/Programming Cable: Peeled length of cable: $43\pm 5\text{mm}$,
Tinned length of wire: $10\pm 2\text{mm}$

SS-250VH-A Series LED Driver

Outline and mounting dimensions

Name Description	Standard Code	mm(In.)
Case Length	L3	163(6.42)
Case Width	W1	66(2.6)
Case Height	H1	37(1.46)
Overall Length	L1	180(7.09)
Mounting Hole Length	L2	171.1(6.73)
Mounting Hole Width	W2	32(1.26)
Screw hole width	D1	4.1(0.16)
TC Point Position	X	112(4.41)
TC Point Position	Y	35(1.38)

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



SS-250VH-A Series LED Driver



Assembly Tips

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

Package

- Outside carton dimension: $L \times W \times H = 495\text{mm} \times 385\text{mm} \times 162\text{mm}$;
- 14PCS/Carton;
- Net weight/Piece: 0.85kg; Gross weight/Carton: 13.2kg;
- 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 installation.

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	2024/06/12	
V01	Update Derating Curve and Model List	2024/11/29	

