

# SOSEN LED Driver, Your Smart Choice

## Specifications

### SS-25VA-L50B LED Driver

Model: SS-25VA-L50B

Description: 25W LED Driver

Rev.: V05

Release Date: 2023-02-01

# SS-25VA-L50B LED Driver

**SOSEN**  
LED DRIVER



**LED DRIVER**

**VA-L Series**



## Features:

- Efficiency up to 88%
- Isolated dimming: 0-10V, PWM, Resistor
- Surge protection: CM: 10kV, DM: 6kV
- Standby Power < 1W
- IP67
- Protections: SCP/OVP
- Warranty: 5 years



**CE CB IP67 RoHS**

## Description:

SS-25VA-L50B is 25W constant current LED Driver with 90-305Vac input. It has high efficiency, high PF, high reliability, compact housing, good cooling, all-around protections. LED luminaries manufactures can easily design luminaries and reduce cost.

### Applications:

Stadium 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-25VA-L50B | 90-305Vac      | 25W       | 28-50V     | 38-50V              | 0.4-0.66A | 0.52A           | 12%       | 0.97     | 88.0%      | 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;

# SS-25VA-L50B LED Driver

## Input Characteristics:

| Parameter                  | Min.   | Typ.    | Max.   | Remark                                                |
|----------------------------|--------|---------|--------|-------------------------------------------------------|
| Rated AC Input Range       | 100Vac |         | 277Vac |                                                       |
| AC Input Range             | 90Vac  |         | 305Vac | Input<100Vac , 90% load ,<br>Reference derating curve |
| Input Frequency Range      | 47Hz   | 50/60Hz | 63Hz   |                                                       |
| Max Input Current          |        |         | 0.35A  | 100Vac, Full load                                     |
|                            |        |         | 0.12A  | 277Vac, Full load                                     |
| Max Input Power            |        |         | 35W    | 100Vac, Full load                                     |
| Max Inrush Current(120Vac) |        |         | 30A    | Cold start                                            |
| Max Inrush Current(220Vac) |        |         | 45A    | Cold start                                            |
| Max Inrush Current(277Vac) |        |         | 60A    | Cold start                                            |
| Standby Power              |        |         | 1W     | 220Vac/50Hz, Dim to off                               |
| Power Factor               | 0.95   | 0.97    |        | 220Vac/50Hz, Full load                                |
|                            | 0.90   |         |        | 100-277Vac/50Hz, 70-100% load                         |
| THD                        |        | 12%     | 15%    | 220Vac/50Hz, Full load                                |
|                            |        |         | 20%    | 100-277Vac/50Hz, 70-100% load                         |

# SS-25VA-L50B LED Driver

## O/P Characteristics:

| Parameter                    | Min.      | Typ.  | Max.      | Remark                                  |
|------------------------------|-----------|-------|-----------|-----------------------------------------|
| O/P Voltage Range            | 28V       |       | 50V       | Power derated @28-38V                   |
| Rated O/P Voltage            | 38V       |       | 50V       | $P_o = V_o \cdot I_o = 25W$ , Full load |
| Rated O/P Current            | 0.5A      |       | 0.66A     | 0.66A for 38V, 0.5A for 50V             |
| Adj. O/P Current (AOC) Range | 0.4A      |       | 0.66A     |                                         |
| No Load Voltage              |           |       | 60V       |                                         |
| Efficiency @120Vac           | 85.0%     | 86.0% |           | O/P 50V/0.5A                            |
| Efficiency @220Vac           | 86.0%     | 88.0% |           | O/P 50V/0.5A                            |
| Efficiency @277Vac           | 85.0%     | 87.0% |           | O/P 50V/0.5A                            |
| O/P Current Tolerance        | -7%       |       | +7%       |                                         |
| O/P Current Ripple(PK-AV)    |           | 85%   | 100%      | Full load                               |
| Start-up Current Overshoot   |           |       | 10%       | Full load                               |
| Start-up Time                |           |       | 1.0S      | 120Vac, Full load                       |
|                              |           |       | 0.5S      | 220Vac, Full load                       |
| Line Regulation              | -7%       |       | +7%       | Full load                               |
| Load Regulation              | -7%       |       | +7%       |                                         |
| Temperature Coefficient      | -0.07%/°C |       | +0.07%/°C | T <sub>c</sub> : 0°C~90°C               |
| Short Circuit Protection     |           |       | 5W        | Driver will not be damaged, Hiccup mode |

# SS-25VA-L50B LED Driver

## Other Characteristics:

| Parameter                   |               | Min.            | Typ.  | Max.      | Remark                                                                                                                                       |
|-----------------------------|---------------|-----------------|-------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------|
| 0-10V Dimming (Optional)    | Dim Vmax      | 0V              |       | 12V       | DIM+ source current 110uA.                                                                                                                   |
|                             | Dim Range     | 10%Iomax        |       | 100%Ioset | Dimming prohibits reverse connection                                                                                                         |
|                             | Rec.Dim Range | 0V              |       | 10V       |                                                                                                                                              |
| 5-0V Dimming (Optional)     | Dim Vmax      | 0V              |       | 5V        | DIM+ source current <300uA.                                                                                                                  |
|                             | Dim Range     | 100%Iomax       |       | 10%Ioset  | Dimming prohibits reverse connection                                                                                                         |
|                             | Rec.Dim Range | 0V              |       | 5V        |                                                                                                                                              |
| 10-0V Dimming (Optional)    | Dim Vmax      | 0V              |       | 10V       | DIM+ source current <300uA.                                                                                                                  |
|                             | Dim Range     | 100%Iomax       |       | 10%Ioset  | Dimming prohibits reverse connection                                                                                                         |
|                             | Rec.Dim Range | 0V              |       | 10V       |                                                                                                                                              |
| PWM Dimming (Optional)      | PWM High      | 9.8V            |       | 10.2V     | DIM+ source current 110uA.                                                                                                                   |
|                             | PWM Low       | 0V              |       | 0.3V      | Dimming prohibits reverse connection                                                                                                         |
|                             | Frequency     | 1KHz            |       | 2KHz      |                                                                                                                                              |
|                             | PWM Duty      | 0%              |       | 100%      |                                                                                                                                              |
| Resistor Dimming (Optional) | Resistance    | 0Kohm           |       | 100Kohm   | DIM+ source current 110uA.                                                                                                                   |
|                             | Dim Range     | 10%Iomax        |       | 100%Ioset |                                                                                                                                              |
| Dim to Off                  | Dim off       | 3%              | 5%    | 7%        | If the led is less than 42V,the luminaries may possibly have slight light when dim-to-off. Thus the whole lighting system needs to be tested |
|                             | Dim on        | 5%              | 7%    | 9%        |                                                                                                                                              |
| Dim to Off(5-0V)            | Dim off       | 4.7V            | 4.85V | 5V        |                                                                                                                                              |
|                             | Dim on        | 4.6V            | 4.75  | 4.9V      |                                                                                                                                              |
| Lifetime(Tc≤80°C)           |               | ≥62,000 hours   |       |           | 80% load                                                                                                                                     |
| MTBF                        |               | 262,000 hours   |       |           | 220Vac,Full load, Ta=25°C (MIL-HDBK-217F)                                                                                                    |
| IP Grade                    |               | IP67            |       |           |                                                                                                                                              |
| Tc                          |               | 90°C            |       |           |                                                                                                                                              |
| Warranty                    |               | 5 years         |       |           | Tc : 80°C                                                                                                                                    |
| Net Weight                  |               | 330g            |       |           |                                                                                                                                              |
| Dimension                   |               | 120mm*50mm*31mm |       |           | L x W x H                                                                                                                                    |

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

# SS-25VA-L50B 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                                                              | ✓      |        |
| ENEC          | EN 61347-1:2015<br>EN 61347-2-13:2014<br>EN 61347-2-13:2014/A1:2017 | ✓      |        |
| RCM           | AS/NZS61347.2.13                                                    | ✓      |        |
| CCC           | GB 19510.14-2009                                                    | ✓      |        |
| CE            | EN 61347-2-13:2014<br>EN61347-1:2008+A1:2011+A2:2013                | ✓      |        |

| EMI/EMS                    | Criterion                                                      | Remark                       |
|----------------------------|----------------------------------------------------------------|------------------------------|
| Conduction Emission        | EN55015:2013+A1:2015<br>FCC Part 15 Subpart B; ANSI C63.4:2014 | Class B                      |
| Radiation Emission         | EN55015:2013+A1:2015<br>FCC Part 15 Subpart B; ANSI C63.4:2014 | Class B                      |
| 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-25VA-L50B LED Driver

## Safety Test Items:

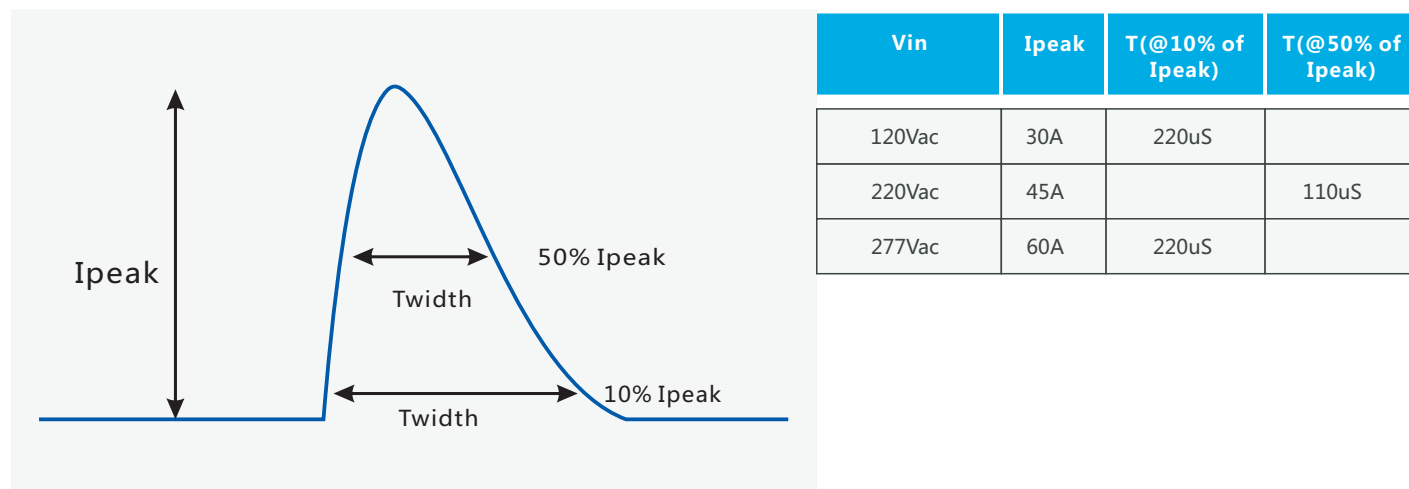
| Safety Test Items       | Technical Indicators       |                              |                             | Remark                          |
|-------------------------|----------------------------|------------------------------|-----------------------------|---------------------------------|
| Insulation Requirements | UL Insulation Requirements | ENEC Insulation Requirements | CCC Insulation Requirements |                                 |
| Input-O/P               | 1600Vac                    | 3000Vac                      | 3750Vac                     | Reinforced insulation           |
| Input-Case              | 1600Vac                    | 1500Vac                      | 1875Vac                     | Basic insulation                |
| Input-Dim               | 1600Vac                    | 3000Vac                      | 3750Vac                     | Reinforced insulation           |
| O/P-Dim                 | 1600Vac                    | 1000Vac                      | 1000Vac                     | Basic insulation                |
| O/P-Case                | 500Vac                     | 1000Vac                      | 1000Vac                     | Basic insulation                |
| Dim-Case                | 500Vac                     | 250Vac                       | 250Vac                      | Basic insulation                |
| 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 of components.
2. Please short (ACL and ACN), (V+ and V-), (Dim+ and Dim -) 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:

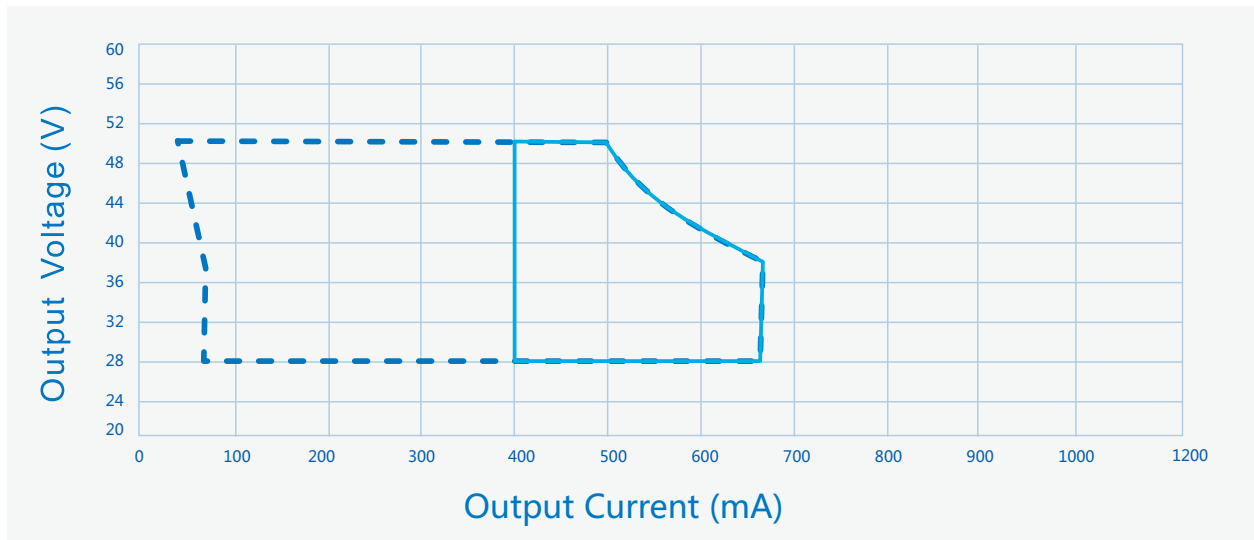
### Input Inrush Current



# SS-25VA-L50B LED Driver

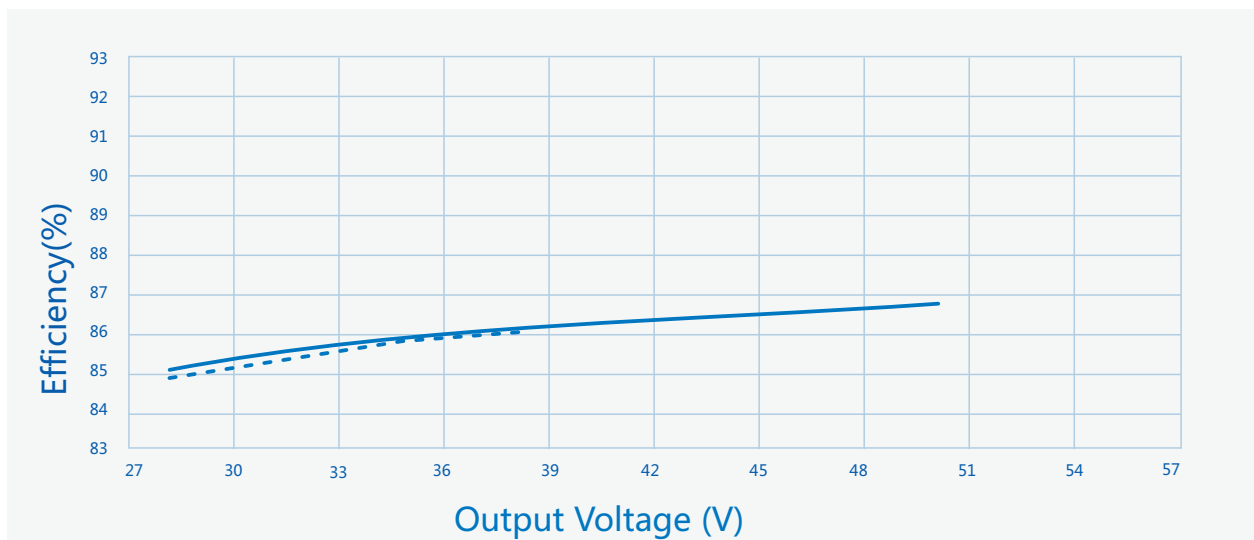
## Performance Curves:

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



----- Dimming Window      ————— AOC Window

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



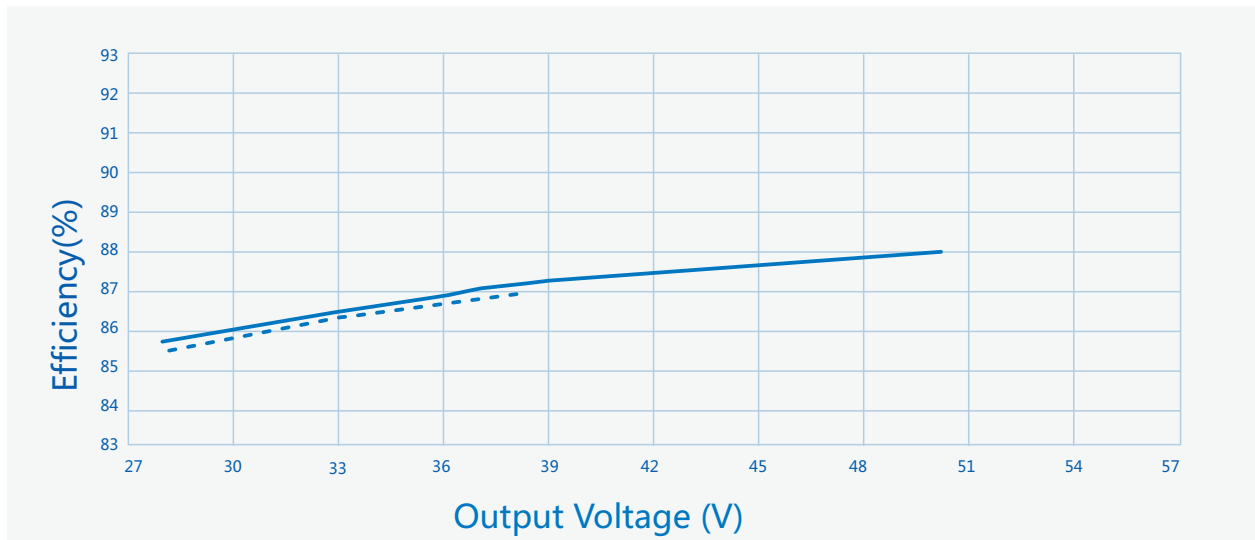
-----  $I_o=660mA$       —————  $I_o=500mA$



# SS-25VA-L50B LED Driver

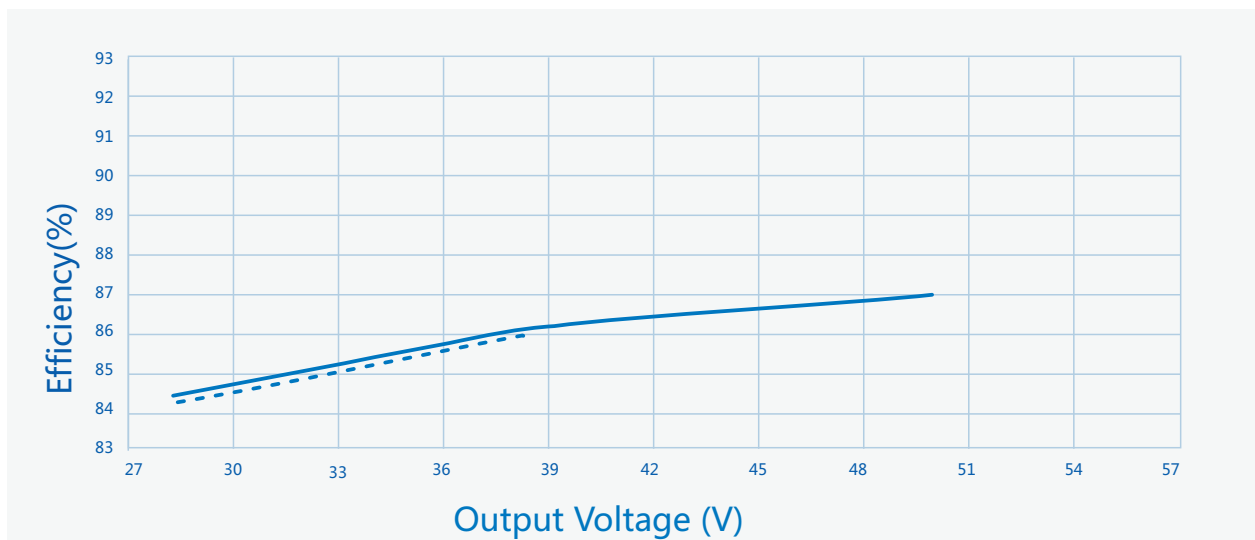
## Performance Curves:

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



-----  $I_o=660mA$       —————  $I_o=500mA$

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

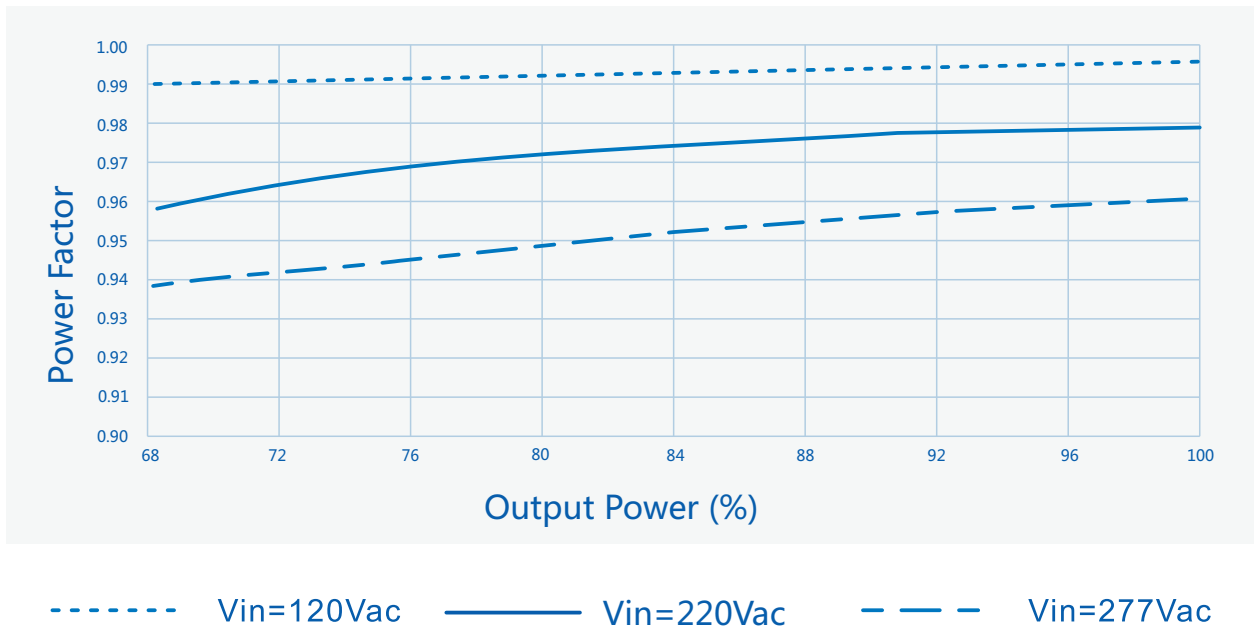


-----  $I_o=660mA$       —————  $I_o=500mA$

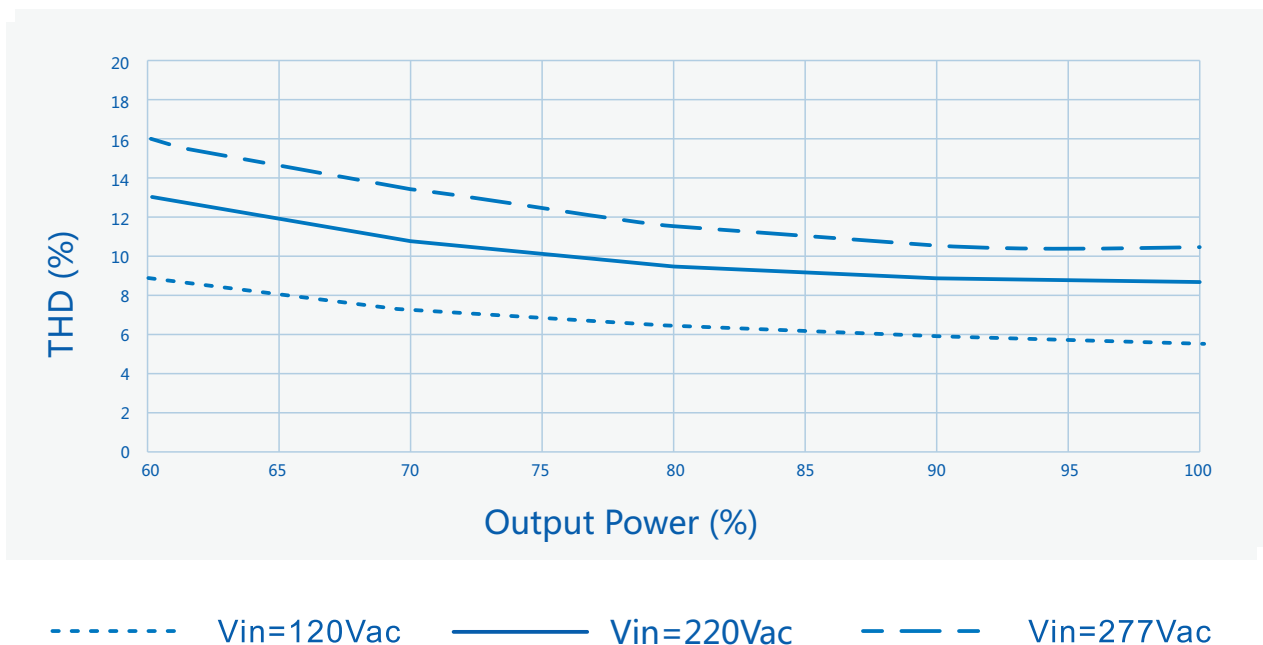
# SS-25VA-L50B LED Driver

## Performance Curves:

Power Factor Vs. O/P Power



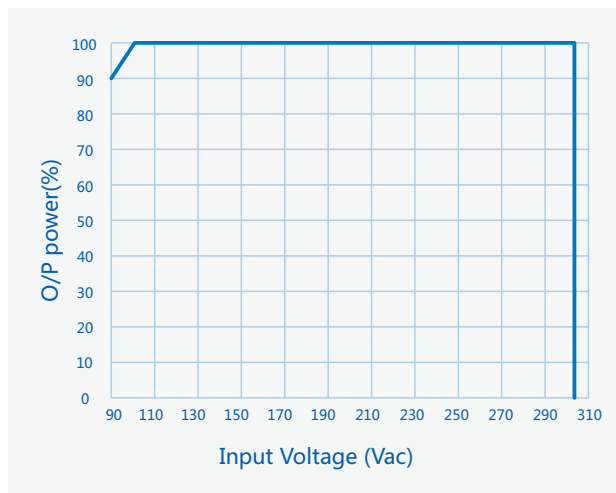
THD Vs. O/P Power



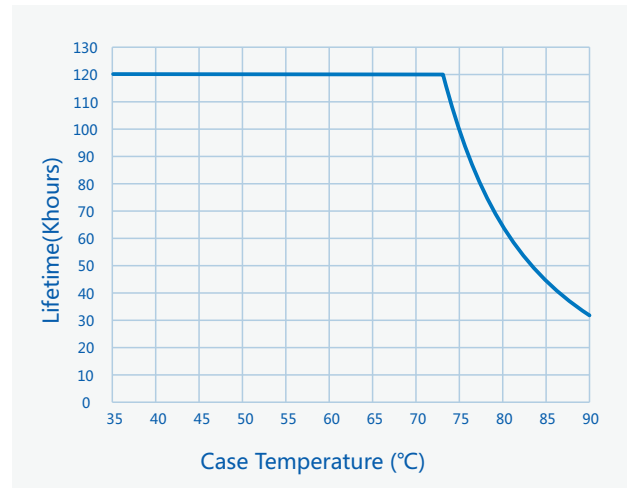
# SS-25VA-L50B LED Driver

## Performance Curves:

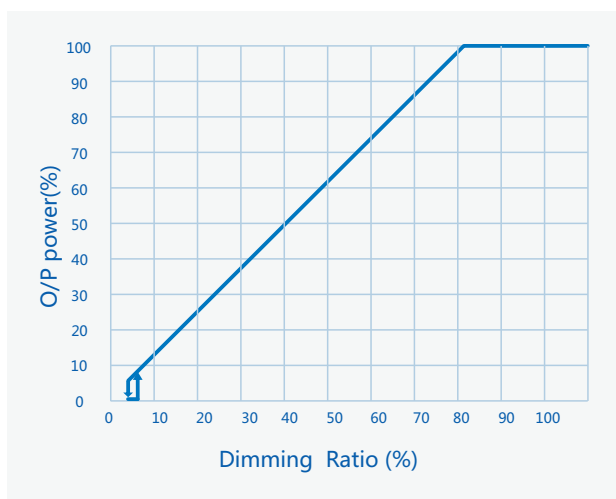
### O/P Power Vs. Input Voltage



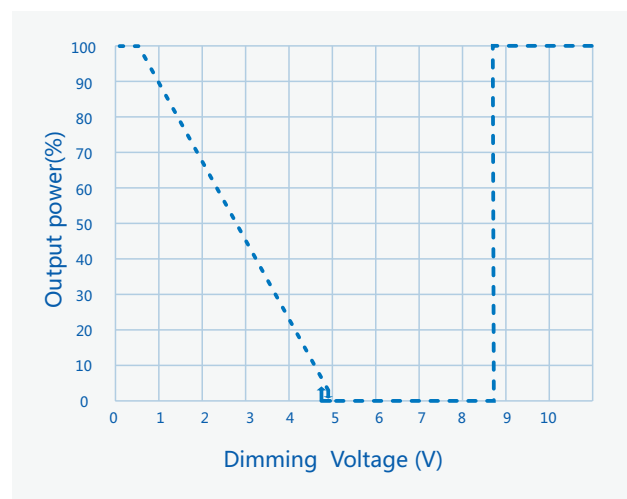
### Lifetime Vs. Case Temperature



### O/P Power Vs. Dimming

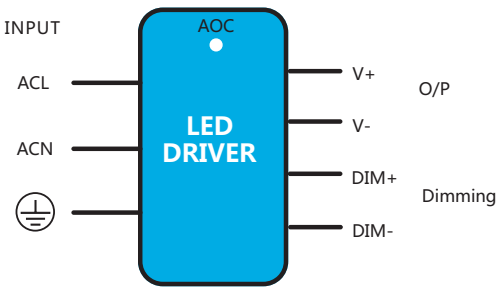


### O/P Power Vs. Dimming(5-0V)



# SS-25VA-L50B 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:⊕

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

UL model: UL 21996,2\*20AWG,O.D: 5.06mm,Red:V+ , Black:V-

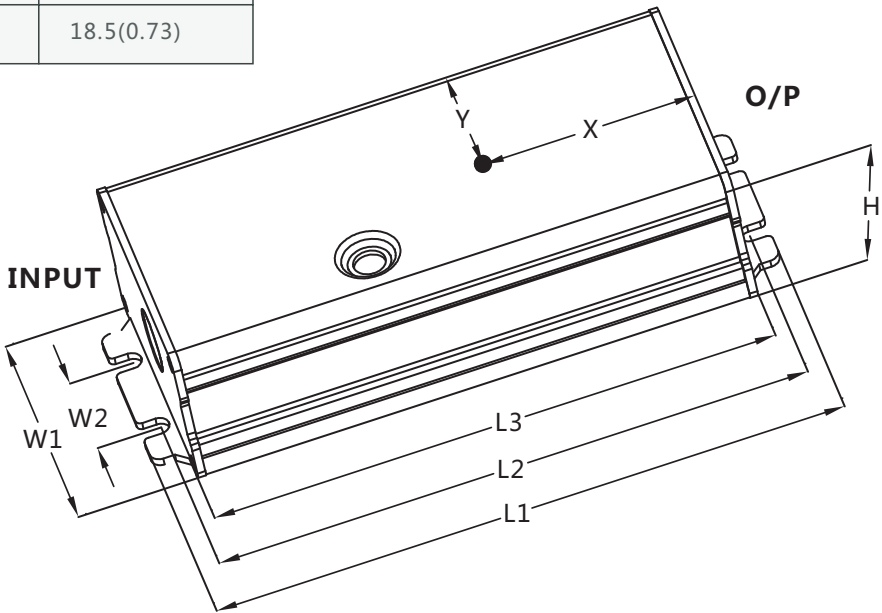
### DIM/Timing Cable(Exposed Length 220±10mm):

UL model: UL 21996, 2\*22AWG , O.D: 4.7mm , Purple : DIM+, Pink: DIM-

| Name<br>Description     | Standard<br>Code | mm(In.)     |
|-------------------------|------------------|-------------|
| Case Length             | L3               | 107(4.21)   |
| Case Width              | W1               | 50(1.97)    |
| Case Height             | H                | 31(1.22)    |
| Overall Length          | L1               | 120(4.72)   |
| Mounting Hole<br>Length | L2               | 113.1(4.45) |
| Mounting Hole<br>Width  | W2               | 18.2(0.72)  |
| TC Point<br>Position    | X                | 30(1.18)    |
| TC Point<br>Position    | Y                | 18.5(0.73)  |

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



# SS-25VA-L50B LED Driver



## Assembly Tips

1. Highly recommended to seal the adjustable hole with silicon glue(#704 preferred) after adjusting the Driver's O/P current. Torsion with proper strength to avoid permanent damage to the potentiometer inside.
2. Dimming tinned connectors should be capped if not used to avoid dimming parts damage from external signals.

## Package

- Outside carton dimension: L×W×H =495mm×385mm×162mm;
- 42PCS/Carton;
- Net weight/Piece: 0.33kg;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          | 2020/09/04   |        |
| V01     | Increase Default Current  | 2020/10/13   |        |
| V02     | Update package quantity   | 2020/12/28   |        |
| V03     | Update DIM Cable Color    | 2021/09/02   |        |
| V04     | Add Note About Dim To Off | 2021/12/08   |        |
| V05     | Add Page Number           | 2023/02/01   |        |

