



# SOSEN LED Driver, Your Smart Choice

## Specifications

### SS-200VA Series LED Driver

Model: SS-200VA-56\*

Description: 200W LED Driver

Rev.: V06

Release Date: 2021-09-02

# SS-200VA Series LED Driver

**SOSEN**  
LED DRIVER



**LED DRIVER**

**VA Series**



## Features:

- Efficiency up to 93%
- Isolated dimming: 1-10V, PWM, Resistor, Timing
- IP67
- Protections: SCP/OTP/OVP/OPP
- Comply with the Class P
- Type HL, suitable for hazardous locations
- Surge protection: CM: 10kV, DM: 6kV
- Warranty: 5 years



## Description:

SS-200VA is a rectangular driver with 90-305Vac input, the 200W model are designed for street and area lights with IP67 and 10kV/6kV surge protection. It has UL listed mark with Class P and Type HL rated.

## Model List:

| Model        | AC Input Range | Max. Pout | Vout Range | Full Power Vo Range | Iout     | THD(Typ.) | PF(Typ.) | Eff.(Typ.) | Max.Tc |
|--------------|----------------|-----------|------------|---------------------|----------|-----------|----------|------------|--------|
| SS-200VA-56* | 90-305Vac      | 200W      | 22-56V     | 36-56V              | 2.8-5.6A | 8%        | 0.98     | 93%        | 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;
3. "\*" Optional B or space in the place of \* means additional function.
  - Space is the base model without any optional function;
  - Suffix B for model with 3-in-1 dimming (1-10V, PWM, Resistor);
  - Suffix T for model with Timing.

# SS-200VA Series LED Driver

## Input Characteristics:

| Parameter                  | Min.   | Typ.    | Max.   | Remark                        |
|----------------------------|--------|---------|--------|-------------------------------|
| Rated AC Input Range       | 100Vac |         | 277Vac |                               |
| AC Input Range             | 90Vac  |         | 305Vac |                               |
| Input Frequency Range      | 47Hz   | 50/60Hz | 63Hz   |                               |
| Max Input Current          |        |         | 2.4A   | 100Vac, Full load             |
| Max Input Power            |        |         | 227W   | 100Vac, Full load             |
| Max Inrush Current(120Vac) |        |         | 60A    | Cold start                    |
| Max Inrush Current(220Vac) |        |         | 110A   | Cold start                    |
| Max Inrush Current(277Vac) |        |         | 125A   | Cold start                    |
| No Load Power              |        |         | 3W     | 220Vac/50Hz, No load          |
| Power Factor               | 0.96   | 0.98    |        | 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-200VA Series LED Driver

## Output Characteristics:

| Parameter                    | Min.      | Typ.  | Max.      | Remark   |
|------------------------------|-----------|-------|-----------|--|
| Output Voltage Range         | 22V       |       | 56V       | Power derated @22-36V                                      |
| Rated Output Voltage         | 36V       |       | 56V       | $P_o = V_o \cdot I_o = 200W$ , Full load                   |
| Rated Output Current         | 3.6A      |       | 5.6A      | 5.6A for 36V, 3.6A for 56V                                 |
| Adj. O/P Current (AOC) Range | 2.8A      |       | 5.6A      |  |
| No Load Voltage              |           |       | 60V       |  |
| Efficiency @120Vac           | 90.0%     | 91.0% |           | Output 44V/4.6A  |
| Efficiency @220Vac           | 92.0%     | 93.0% |           | Output 44V/4.6A  |
| Efficiency @277Vac           | 92.5%     | 93.5% |           | Output 44V/4.6A  |
| Output Current Tolerance     | -5%       |       | +5%       |  |
| Output Current Ripple(PK-AV) |           | 5%    | 10%       | Full load  |
| 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 Typ., Current derating<br>< Tc Min., Current recovery |
| Short Circuit Protection     |           |       | 10W       | Driver will not be damaged,<br>Hiccup mode                 |

# SS-200VA Series LED Driver

## Other Characteristics:

| Parameter                      |                   | Min.     | Typ. | Max.   | Remark                               |
|--------------------------------|-------------------|----------|------|--|--------------------------------------|
| 1-10V Dimming<br>(Optional)    | Dim Vmax          | 0V       |      | 12V  | DIM+ source current 110uA.           |
|                                | Dim Range         | 10%Iomax |      | 100%Ioset                                    | Dimming prohibits reverse connection |
|                                | Rec.Dim Range     | 1V       |      | 10V  |                                      |
| PWM Dimming<br>(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          | 10%      |      | 100%   |                                      |
| Resistor Dimming<br>(Optional) | Resistance        | 10Kohm   |      | 100Kohm                                      | DIM+ source current 110uA.           |
|                                | Dim Range         | 10%Iomax |      | 100%Ioset                                    |                                      |
| Timing Curve(Optional)         | By programming    |          |      | Set by program<br>(Externally programmable)  |                                      |
| Lifetime(Tc≤72°C)              | ≥62,000 hours     |          |      | 80% load                                     |                                      |
| MTBF                           | 164,000 hours     |          |      | 220Vac,Full load, Ta=25°C<br>(MIL-HDBK-217F) |                                      |
| IP Grade                       | IP67              |          |      |  |                                      |
| Tc                             | 90°C              |          |      |  |                                      |
| Warranty                       | 5 years           |          |      | Tc : 72°C                                    |                                      |
| Net Weight                     | 1100g             |          |      |  |                                      |
| Dimension                      | 222mm*71mm*39.6mm |          |      | L x W x H                                    |                                      |

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

# SS-200VA 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<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 |                              |
| Radiation Emission         | EN55015:2013+A1:2015 |                              |
| Harmonic Current Emissions | IEC/EN 61000-3-2     | Class C                      |
| Surge                      | IEC/EN61000-4-5      | DM: 6kV,CM: 10kV,Criterion B |
| Ring Wave                  | IEC/EN 61000-4-12    | DM: 6kV,CM: 6kV,Criterion B  |

# SS-200VA Series LED Driver

## Safety Test Items:

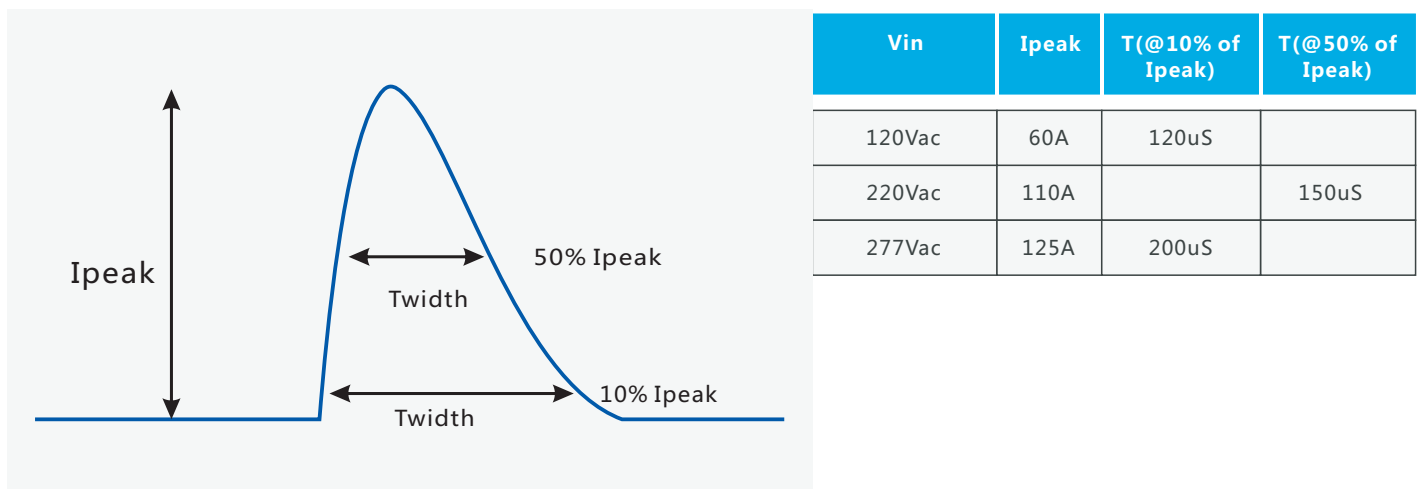
| Safety test items       | Technical Indicators       |                              |                             | Remark                         |
|-------------------------|----------------------------|------------------------------|-----------------------------|--------------------------------|
| 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                       | 500Vac                      | Basic insulation               |
| Insulation Resistance   | ≥10MΩ                      |                              |                             | Input-O/P, Test voltage:500Vdc |
| Ground Resistance       | ≤0.1Ω                      |                              |                             | 25A/1min                       |
| Leakage Current         | ≤0.75mA                    |                              |                             | 277Vac                         |

### NOTE:

1. SOSEN warrants the LED Driver itself meets 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. 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:

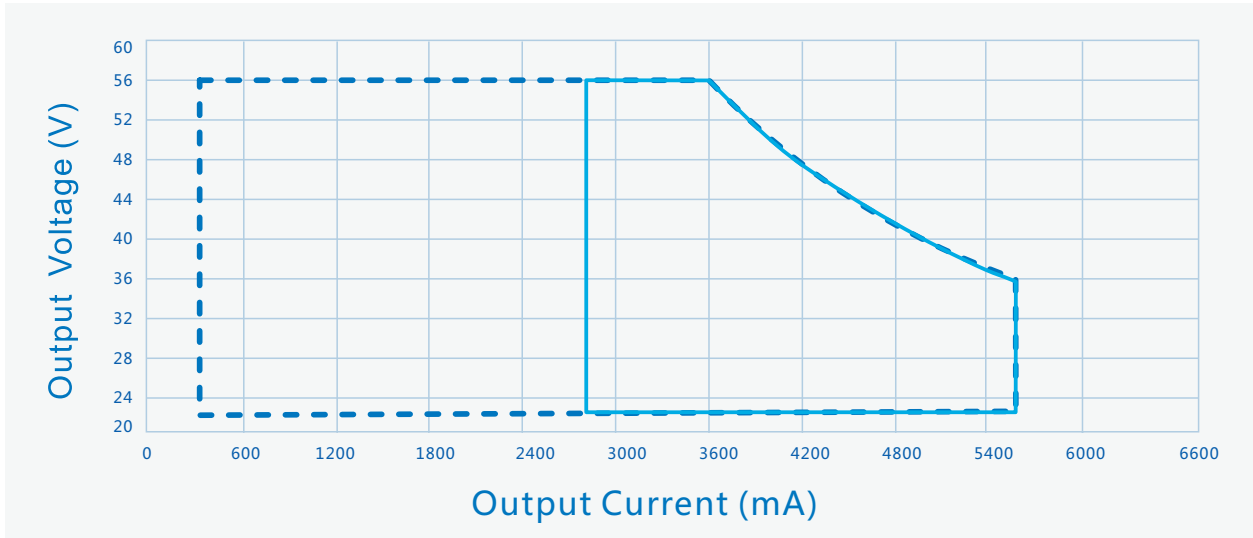
### Input Inrush Current



# SS-200VA Series LED Driver

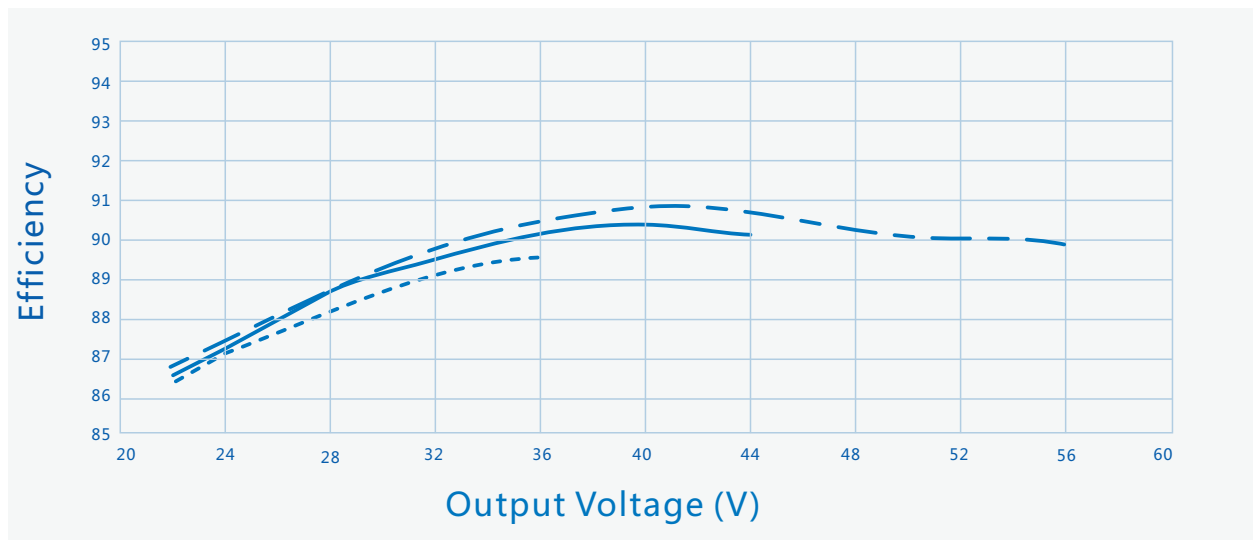
## Performance Curves:

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



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

Efficiency Vs. Output Voltage (Vin=120Vac)



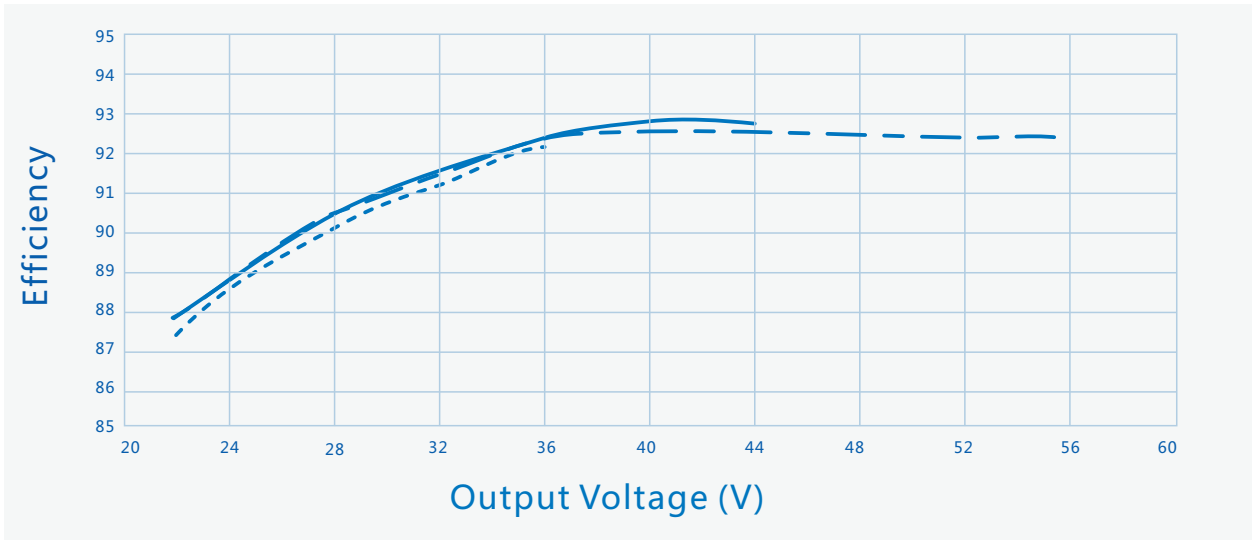
----- Io=5600mA      ————— Io=4600mA      - - - Io=3600mA



# SS-200VA Series LED Driver

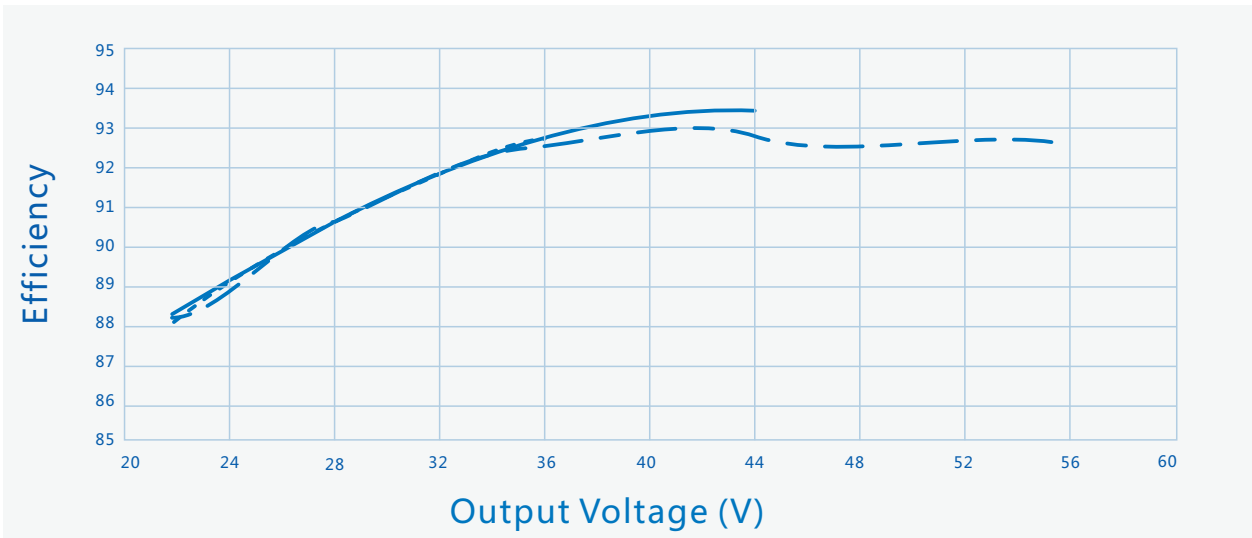
## Performance Curves:

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



----- Io=5600mA      ——— Io=4600mA      - - - Io=3600mA

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

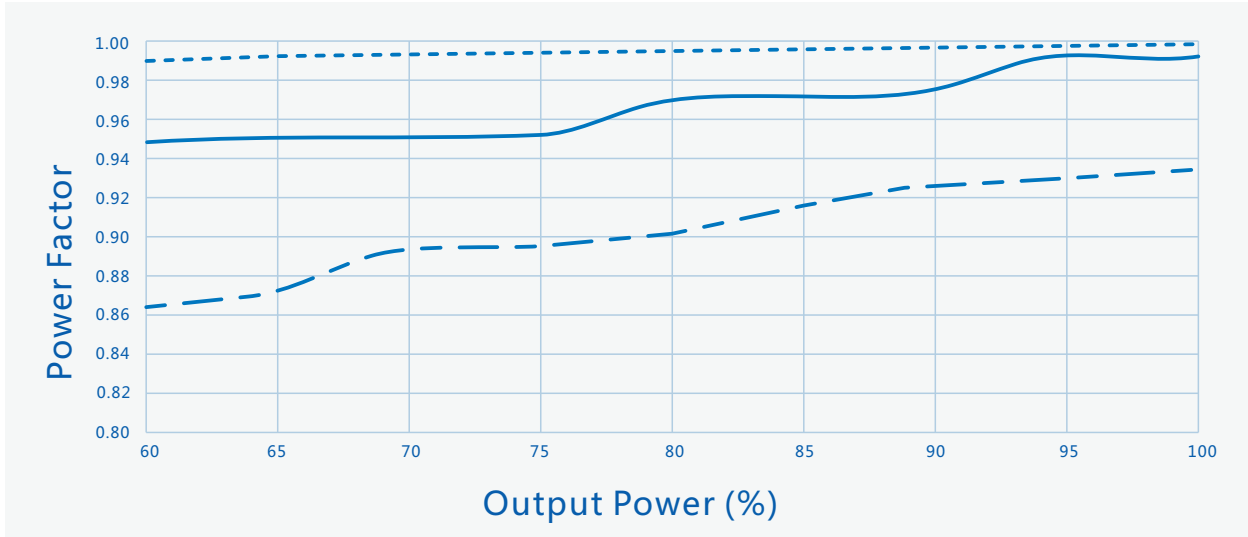


----- Io=5600mA      ——— Io=4600mA      - - - Io=3600mA

# SS-200VA Series LED Driver

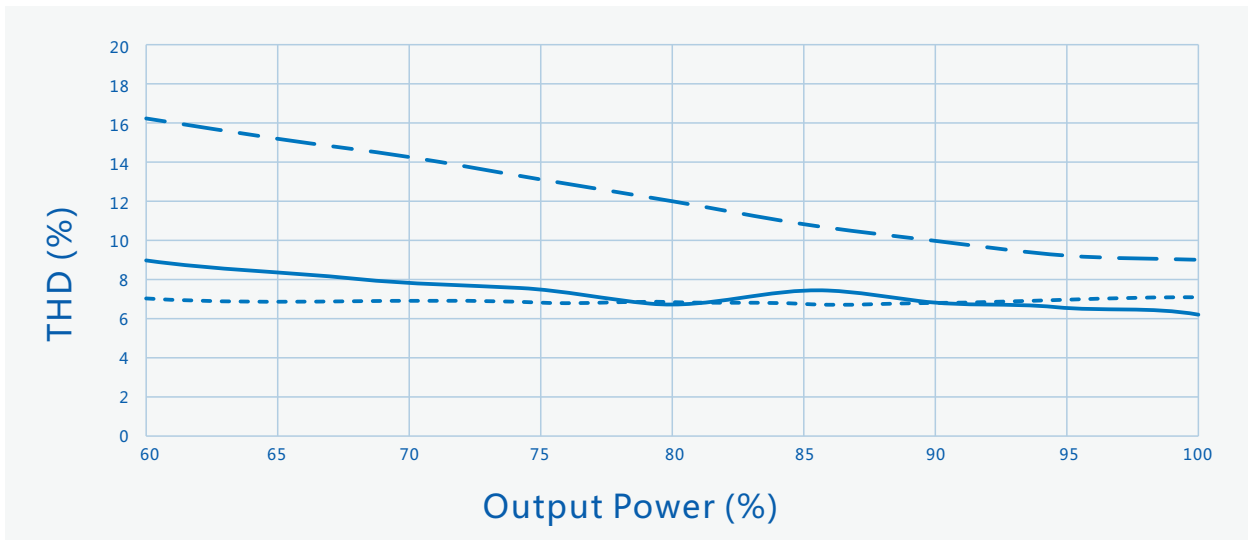
## Performance Curves:

### Power Factor Vs. Output Power



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

### THD Vs. Output Power

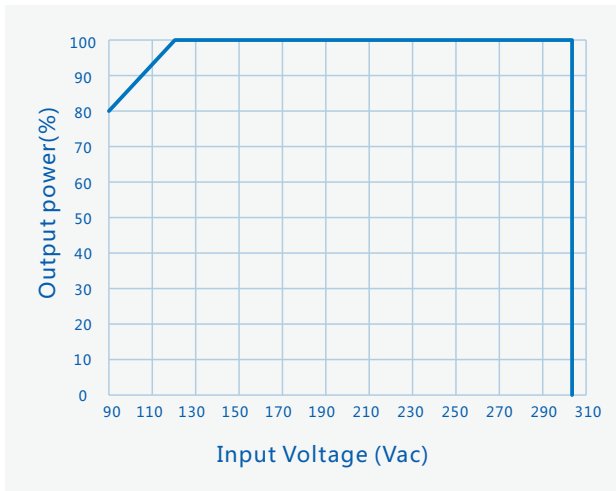


----- Vin=120Vac      ——— Vin=220Vac      - - - Vin=277Vac

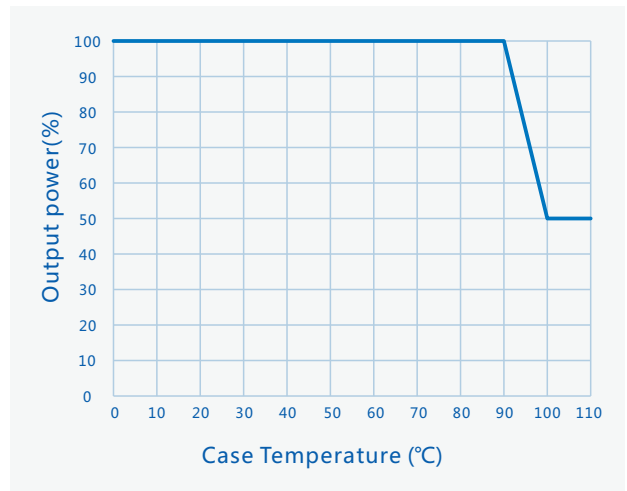
# SS-200VA Series LED Driver

## Performance Curves:

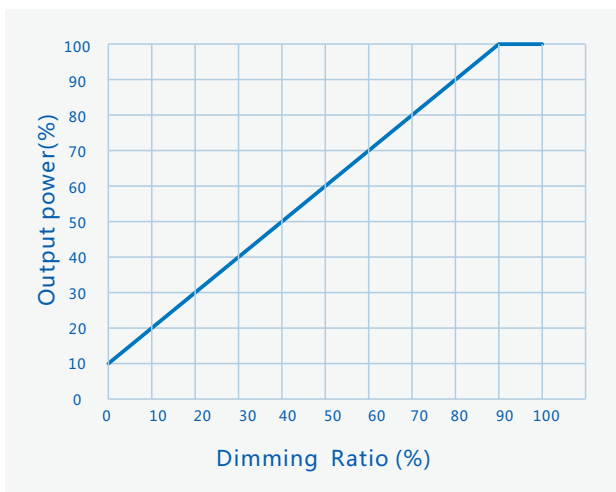
### Output power Vs. Input Voltage (Ta Max.60°C)



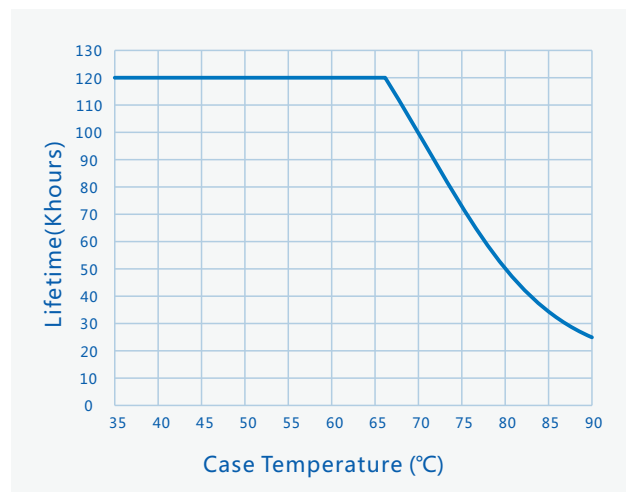
### Output power Vs. Case Temperature



### Output Power Vs. Dimming



### Lifetime Vs. Case Temperature



# SS-200VA Series LED Driver

## Constant Lumen Output

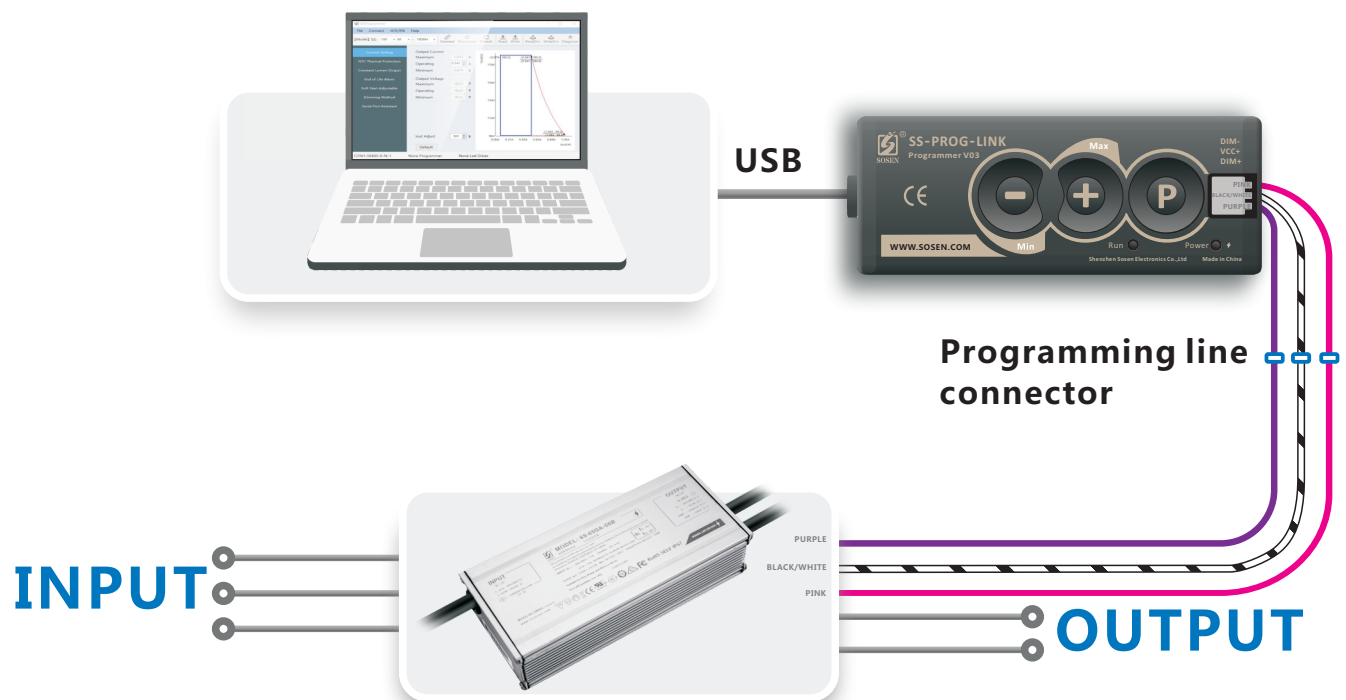
Constant Lumen Output are design to maintain fixture's stable output lumen by increasing driver's output current within driver's life span to counteract LED lumen degradation.

## Timing model programming connection diagram (only for suffix "T model") :

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:

For details, please refer to the Sosen SS-PROG-LINK Programmer Manual.

# SS-200VA Series LED Driver

## Mechanical Characteristics

**LED DRIVER**

**AC Input Cable(Exposed Length 450±10mm):**  
 UL model: SJTW,3\*18AWG,O.D: 7.8mm,Black:L,White:N,Green:⊕  
 Global model: SJOW,3\*17AWG ,O.D:8.2mm,Brown:L, Blue:N,Yellow/Green:⊕

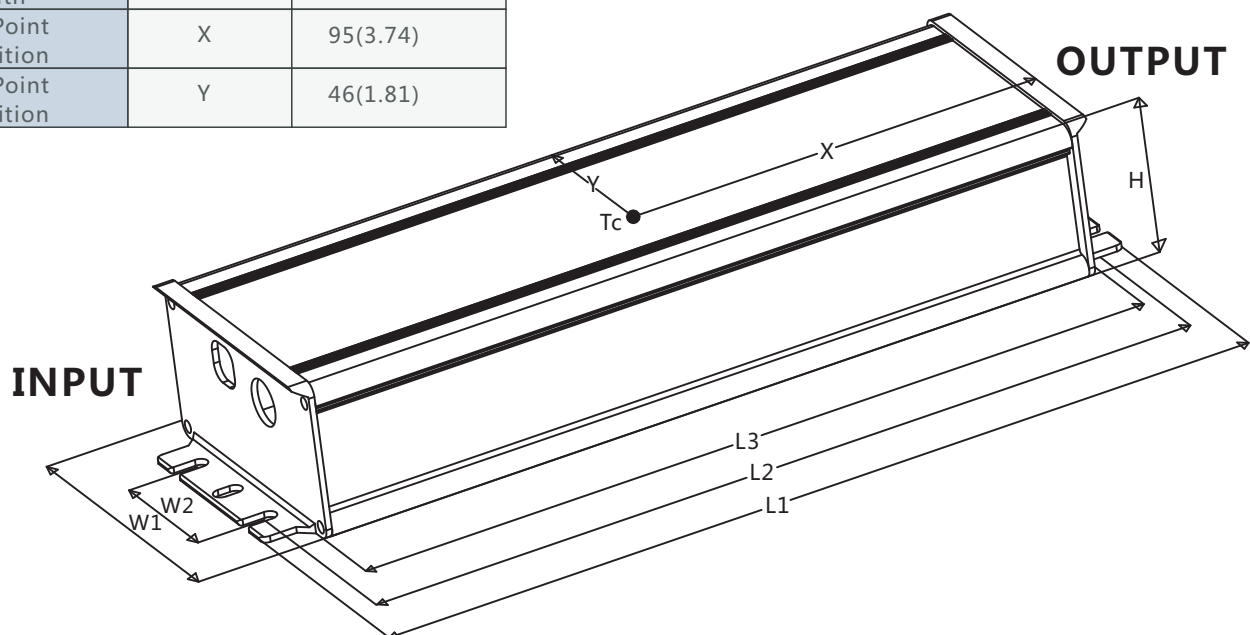
**DC Output Cable(Exposed Length 250±10mm):**  
 UL model: SJTW,2\*16AWG,O.D: 7.8mm,Red:V+ , Black:V-  
 Global model: SJOW,2\*17AWG, O.D:7.7mm, Brown:V+ , Blue:V-

**DIM/Timing Cable(Exposed Length 220±10mm):**  
 UL/Global model(B model): STYLE 21996#22AWG , O.D: 4.7mm ,  
 Purple : DIM+ , Pink: DIM-  
 UL/Global model(T model): STYLE 21996#22AWG , O.D: 4.9mm ,  
 Purple : PROG, Pink: GND , Black/White: VCC+

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 Length          | L3            | 197(7.76)  |
| Case Width           | W1            | 71(2.8)    |
| Case Height          | H             | 39.6(1.56) |
| Overall Length       | L1            | 222(8.74)  |
| Mounting Hole Length | L2            | 207(8.15)  |
| Mounting Hole Width  | W2            | 34(1.34)   |
| TC Point Position    | X             | 95(3.74)   |
| TC Point Position    | Y             | 46(1.81)   |



# SS-200VA Series 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. Avoid permanent damage to adjust the potentiometer with suitable strength.
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;
- 14PCS/Carton;
- Net weight/PC: 1.1kg;Gross weight/Carton: 16.4kg;
- 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 stock 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             | 2018/10/18   |        |
| V01     | Update Structure Diagram     | 2019/04/04   |        |
| V02     | Update Cable Description     | 2019/07/04   |        |
| V03     | Increase Timing Function     | 2020/01/08   |        |
| V04     | Update Programming Diagram   | 2020/03/23   |        |
| V05     | Update Tinned Length Of Wire | 2021/07/02   |        |
| V06     | Update DIM Cable Color       | 2021/09/02   |        |