

# SOSEN LED Driver, Your Smart Choice

## Specifications

### SS-300CA Series LED Driver

Model: SS-300CA-XX\*

Description: 300W LED Driver

Rev.: V10

Release Date: 2023-02-01

# SS-300CA Series LED Driver

**SOSEN**  
LED DRIVER



**LED DRIVER**

**CA Series**



## Features:

- Efficiency up to 94%
- Dimming: DALI-2, 0-10V, PWM, Resistor
- Dim-to-Off
- Surge protection: CM: 6kV, DM: 6kV
- Auxiliary Power : 12V/0.3A
- Standby Power < 0.5W
- IP65
- Type HL, suitable for hazardous locations
- Protections: SCP/OTP/OPP
- Warranty: 5 years



**CE IP65 Class P**

## Description:

SS-300CA series are constant current waterproof LED Driver in round shape with 90-305Vac and high efficiency, supporting multiple dimming models, dim-to-off, auxiliary power

### Applications:

High bay lighting, Plant lighting,

## Model List:

| Model        | AC Input Range | Max. Pout | Vout Range | Full Power Working Voltage | Iout     | Iout (DALI-2) | THD (Typ.) | PF (Typ.) | Eff. (Typ.) | Max.Tc |
|--------------|----------------|-----------|------------|----------------------------|----------|---------------|------------|-----------|-------------|--------|
| SS-300CA-56* | 90-305Vac      | 302.4W    | 28-56V     | 36-56V                     | 4.2-8.4A | 4.66-8.4A     | 8%         | 0.98      | 94%         | 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-300CA Series LED Driver

## “\*” Means Additional Function

| “*” | DALI<br>(suffix:D) | AUX 12V<br>( suffix:H) | Timing<br>( suffix:T) | 0-10V/PWM<br>/Resistor (suffix:B) | Remark |
|-----|--------------------|------------------------|-----------------------|-----------------------------------|--------|
| BH  |                    | ✓                      |                       | ✓                                 |        |
| DH  | ✓                  | ✓                      |                       |                                   |        |

## 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          |        |         | 3.8A   | 100Vac, Full load             |
| Max Input Power            |        |         | 340W   | 100Vac, Full load             |
| Max Inrush Current(120Vac) |        |         | 40A    | Cold start                    |
| Max Inrush Current(220Vac) |        |         | 80A    | Cold start                    |
| Max Inrush Current(277Vac) |        |         | 120A   | Cold start                    |
| Standby Power              |        |         | 0.5W   | 220Vac/50Hz, Dim to off       |
| Power Factor               | 0.95   | 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-300CA Series LED Driver

## Output Characteristics:

| Parameter                    | Min.      | Typ.  | Max.      | Remark                                                   |
|------------------------------|-----------|-------|-----------|----------------------------------------------------------|
| O/P Voltage Range            | 28V       |       | 56V       | Power derated @28-36V                                    |
| Rated O/P Voltage            | 36V       |       | 56V       | $P_o = V_o \cdot I_o = 302.4W$ , Full load               |
| Rated O/P Current            | 5.4A      |       | 8.4A      | 8.4A for 36V, 5.4A for 56V                               |
| Adj. O/P Current (AOC) Range | 4.2A      |       | 8.4A      |                                                          |
|                              | 4.66A     |       | 8.4A      | For DALI-2                                               |
| No Load Voltage              |           |       | 60V       |                                                          |
| Efficiency @120Vac           | 91.0%     | 92.3% |           | Output 46V/6.5A                                          |
| Efficiency @220Vac           | 92.0%     | 94.0% |           | Output 46V/6.5A                                          |
| Efficiency @277Vac           | 92.5%     | 94.2% |           | Output 46V/6.5A                                          |
| 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     | >Tc typ., Current Derating<br><Tc min., Current recovery |
| Short Circuit Protection     |           |       | 10W       | Driver not be damaged, In constant current mode          |
|                              |           |       | 0.5W      | Driver will not be damaged, Shut down for DALI-2         |

# SS-300CA Series LED Driver

## Other Characteristics:

| Parameter                   |               | Min.          | Typ. | Max.      | Remark                                                                                                                                              |
|-----------------------------|---------------|---------------|------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| AUX Power (Optional)        | O/P Voltage   | 10.5V         | 12V  | 12.5V     |                                                                                                                                                     |
|                             | O/P Current   |               |      | 300mA     | Operate max 15min at 400mA                                                                                                                          |
| 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       |                                                                                                                                                     |
| 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 Range     | 10%Iomax      |      | 100%Ioset | DIM+ source current 110uA.                                                                                                                          |
| Dim to Off (Optional)       | Dim off       | 0.7V          | 0.8V | 0.9V      | When DIM- and Vaux- are shared with single wire output, the dimming off point and dimming on point are tested under no load of the auxiliary power. |
|                             | Dim on        | 0.8V          | 0.9V | 1.0V      |                                                                                                                                                     |
| DALI Dimming Level          |               | 1-170(10%)    |      | 254(100%) | Logarithmic dimming curve                                                                                                                           |
| DALI Dimming(Optional)      |               | Meet DALI-2   |      |           |                                                                                                                                                     |
| Lifetime(Tc≤75℃)            |               | 62,000 hours  |      |           | 80% load                                                                                                                                            |
| MTBF                        |               | 200,600 hours |      |           | 220Vac,Full load, Ta=25℃ (MIL-HDBK-217F)                                                                                                            |
| IP Grade                    |               | IP65          |      |           |                                                                                                                                                     |
| Tc                          |               | 90℃           |      |           |                                                                                                                                                     |
| Warranty                    |               | 5 years       |      |           | Tc : 75℃                                                                                                                                            |
| Net Weight                  |               | 2100g         |      |           |                                                                                                                                                     |
| Dimension                   |               | Φ182mm*71.5mm |      |           | D x H                                                                                                                                               |

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

# SS-300CA 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                                                              | ✓      |        |
| ENEC          | EN 61347-1:2015<br>EN 61347-2-13:2014<br>EN 61347-2-13:2014/A1:2017 | ✓      |        |
| RCM           | AS/NZS61347.2.13                                                    | ✓      |        |
| BIS           | IS15885:2012 Part 2 Sec 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/EN 61000-4-5;ANSI/C82.77-5-2017                            | DM: 6kV,CM: 6kV,Criterion B |
| Ring Wave                  | IEC/EN 61000-4-12;ANSI/C82.77-5-2017                           | DM: 6kV,CM: 6kV,Criterion B |

# SS-300CA Series LED Driver

## Safety Test Items:

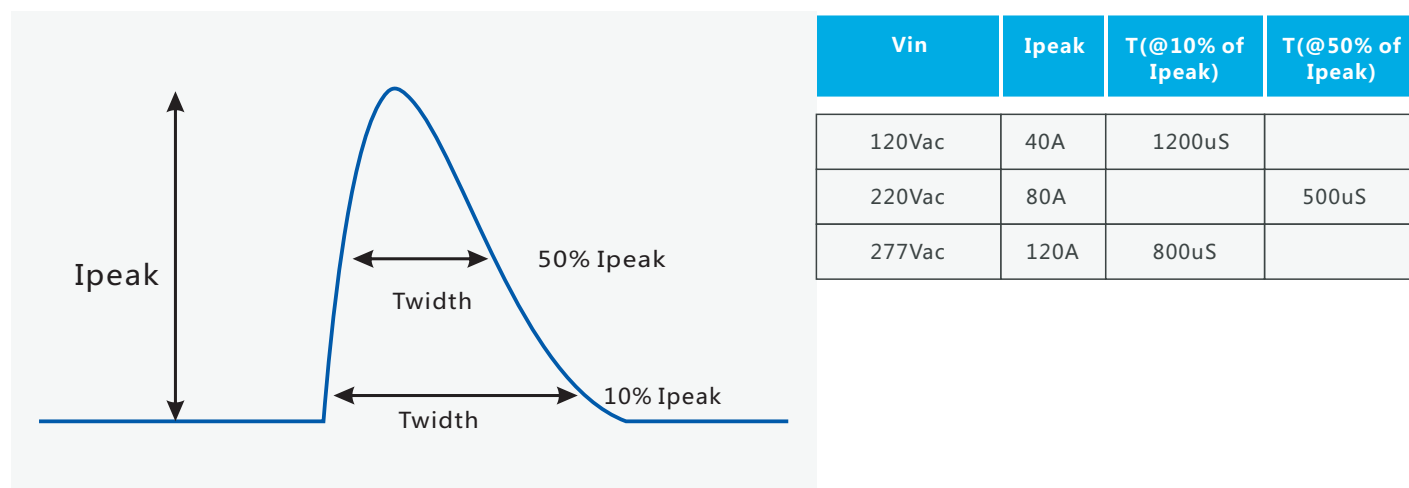
| Safety Test Items       | Technical Indicators       |                              |                             | Remark                             |
|-------------------------|----------------------------|------------------------------|-----------------------------|------------------------------------|
| Insulation Requirements | UL Insulation Requirements | ENEC Insulation Requirements | CCC Insulation Requirements |                                    |
| Input-Output            | 1600Vac                    | 3000Vac                      | 3750Vac                     | Reinforced insulation              |
| Input-Case              | 1600Vac                    | 1500Vac                      | 1875Vac                     | Basic insulation                   |
| Input-Dim               | 1600Vac                    | 3000Vac                      | 3750Vac                     | Reinforced insulation              |
| Output-Dim              | 1600Vac                    | 1000Vac                      | 1000Vac                     | Basic insulation                   |
| Output-Case             | 500Vac                     | 1000Vac                      | 1000Vac                     | Basic insulation                   |
| Dim-Case                | 500Vac                     | 250Vac                       | 500Vac                      | Basic insulation                   |
| Insulation Resistance   | $\geq 10M\Omega$           |                              |                             | Input-Output, Test voltage: 500Vdc |
| Ground Resistance       | $\leq 0.1\Omega$           |                              |                             | 25A/1min                           |
| Leakage Current         | $\leq 0.75mA$              |                              |                             | 277Vac                             |

### NOTE:

1. SOSEN warrants the LED drivers 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 - 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:

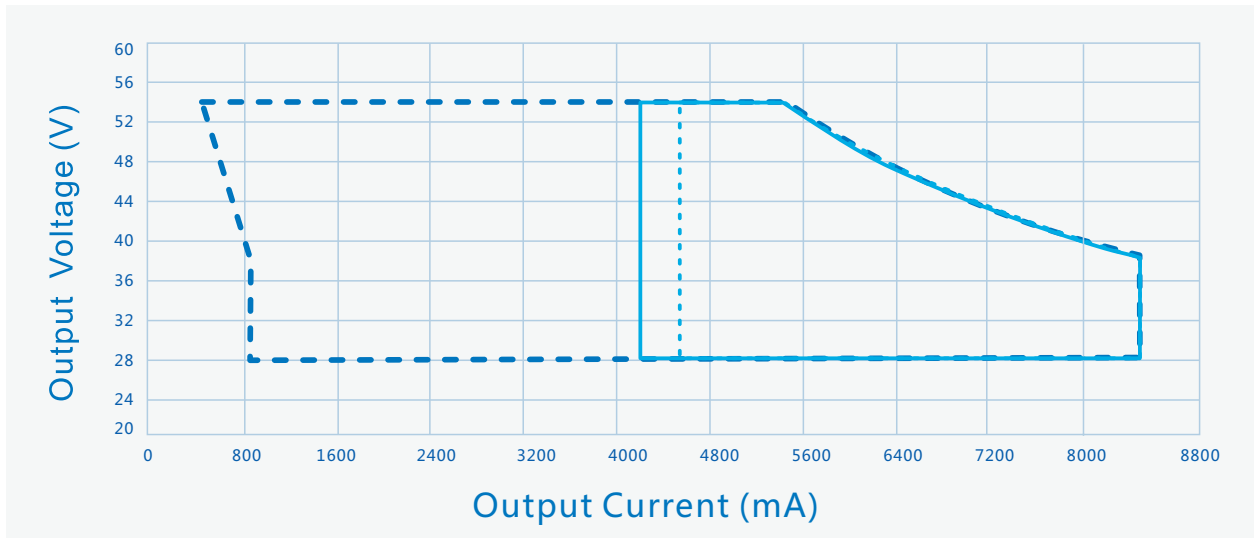
### Input Inrush Current



# SS-300CA Series LED Driver

## Performance Curves:

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

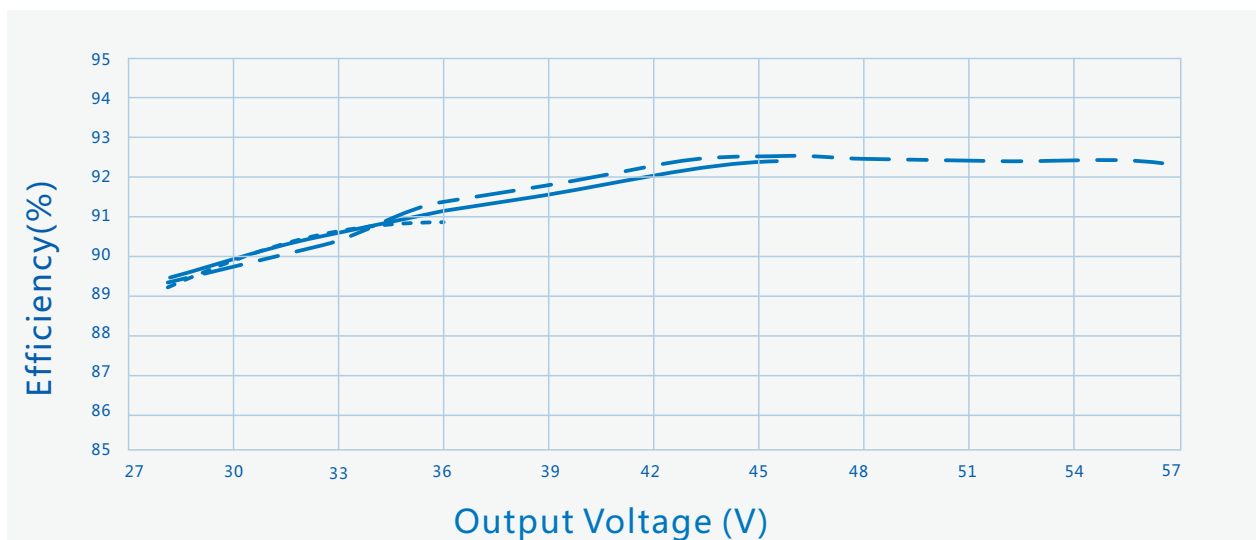


----- Dimming Window

———— AOC Window

..... AOC Window For DALI-2

Efficiency Vs. Output Voltage (Vin=120Vac)



----- Io=8400mA

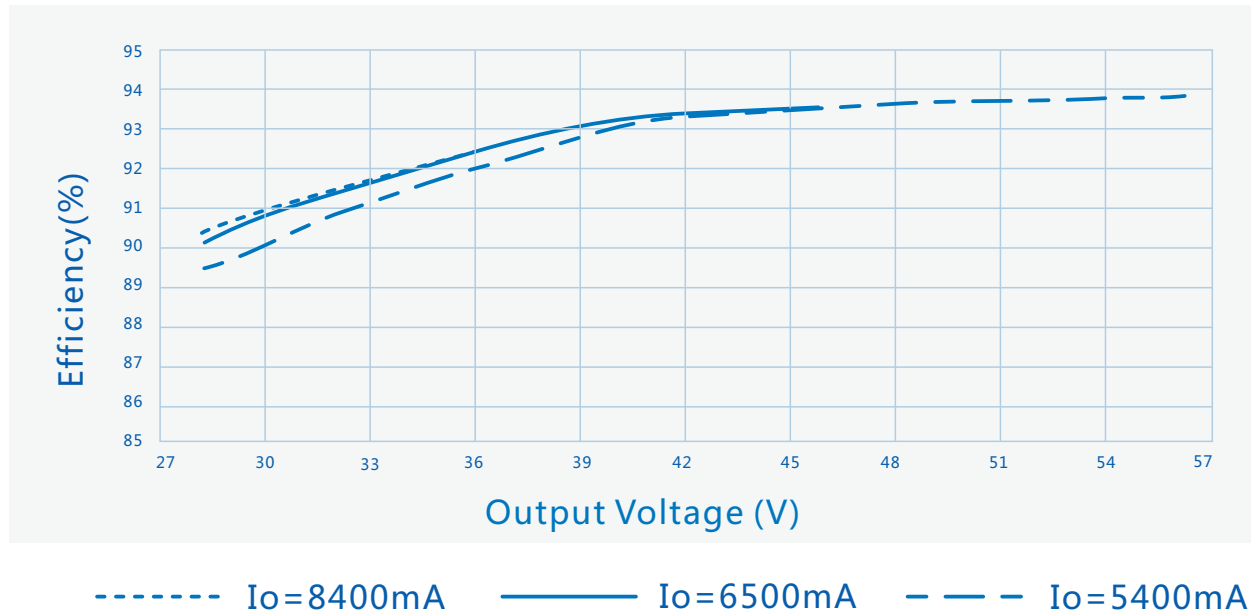
———— Io=6500mA

- - - Io=5400mA

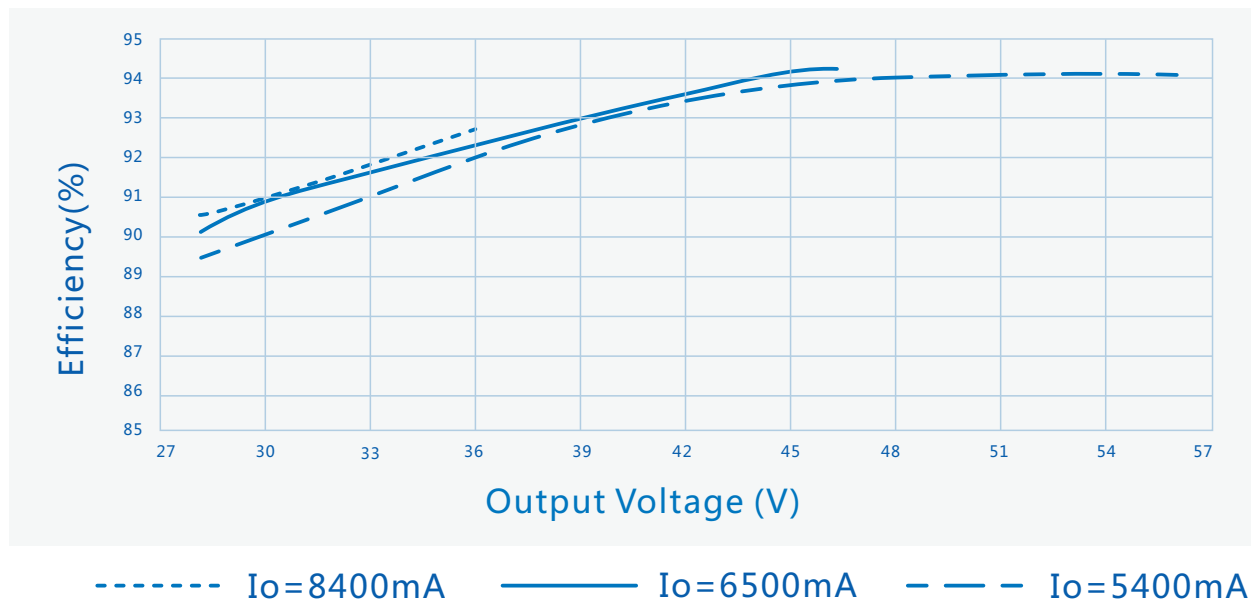
# SS-300CA Series LED Driver

## Performance Curves:

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



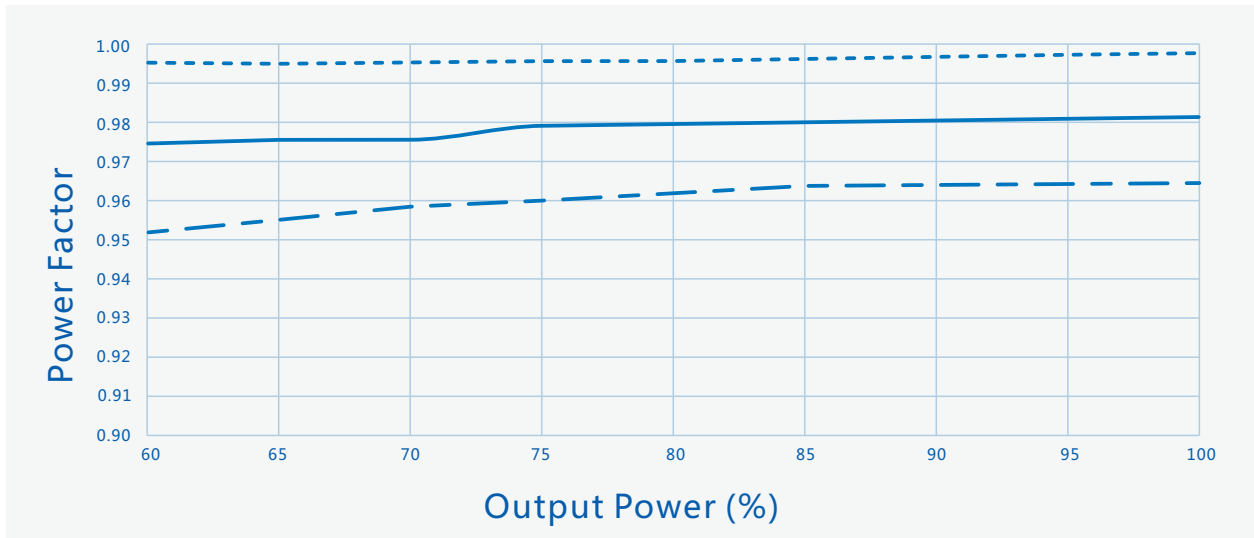
Efficiency Vs. Output Voltage ( $V_{in}=277V_{ac}$ )



# SS-300CA Series LED Driver

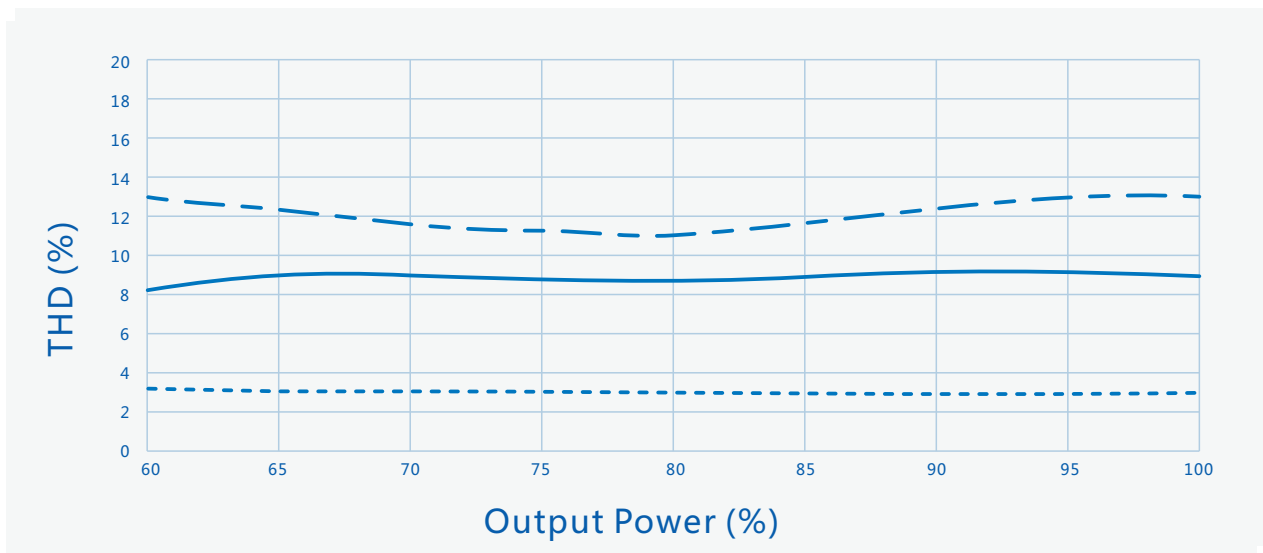
## Performance Curves:

### Power Factor Vs. Output Power



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

### THD Vs. Output Power

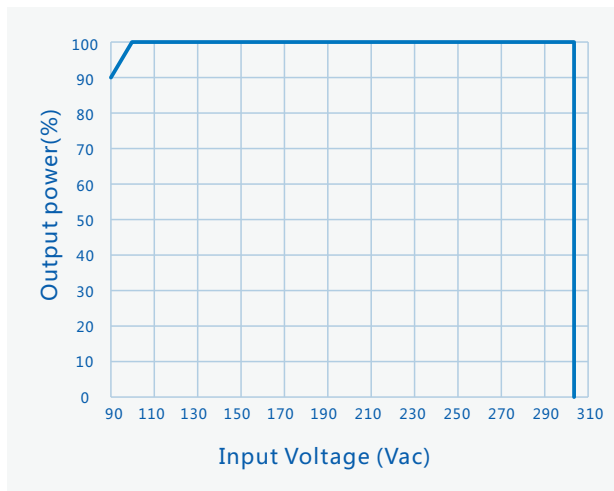


----- Vin=120Vac      ————— Vin=220Vac      - . - . Vin=277Vac

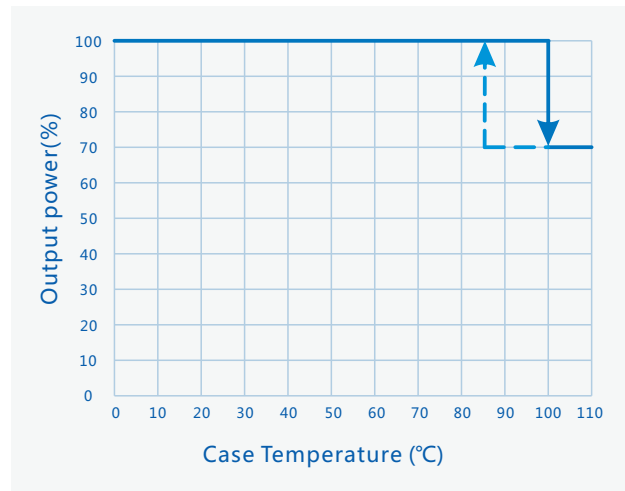
# SS-300CA Series LED Driver

## Performance Curves:

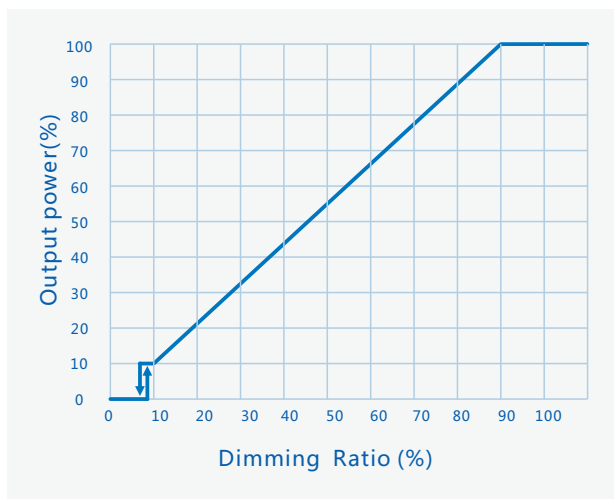
Output Power Vs. Input Voltage  
(Ta Max.50°C)



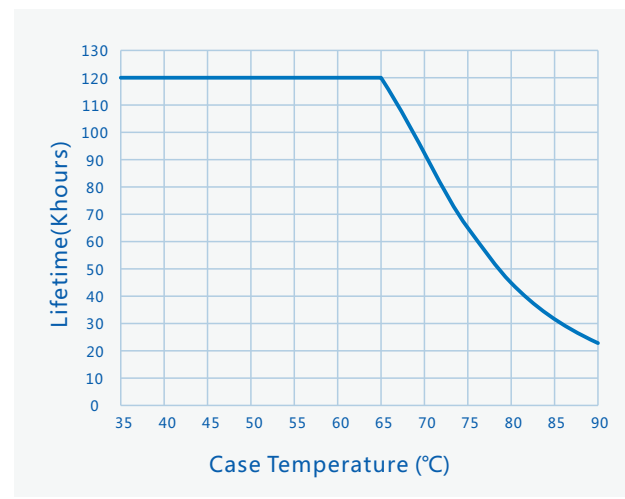
Output Power Vs. Case Temperature



Output Power Vs. Dimming

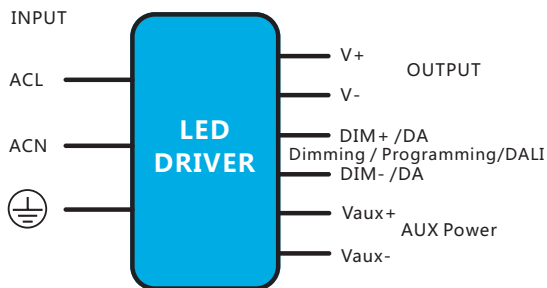


Lifetime Vs. Case Temperature



# SS-300CA Series LED Driver

## Mechanical Characteristics



### AC Input Cable(Exposed Length 300±10mm):

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

EU model: H05RN-F,3\*1.0mm<sup>2</sup>, O.D:7.3mm,Brown:L, Blue:N,Yellow/Green:⊕

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

### DC Output Cable(Exposed Length 300±10mm):

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

EU model: H05RN-F,2\*1.5mm<sup>2</sup>, O.D:9.0mm, Brown:V+, Blue:V-

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

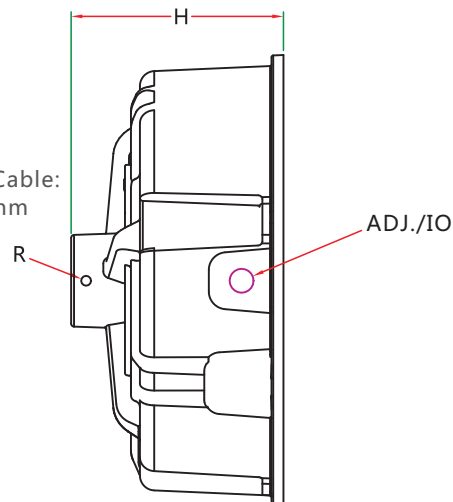
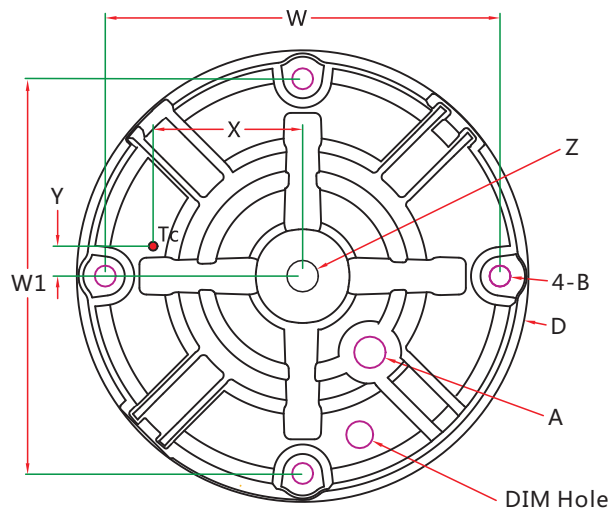
### DIM /AUX Cable(Exposed Length 220±10mm):

UL/EU/Global model: UL 21996, 3\*22AWG, O.D: 4.9mm, Purple : DIM+, Pink: DIM-/Vaux-, Black/White:Vaux+

### DALI/AUX Cable(Exposed Length 220±10mm):

UL/EU/Global model: UL 21996, 4\*22AWG, O.D: 5.6mm, Purple : DA, Pink:DA, Black/White:Vaux+,Blue/White:Vaux-

| Name Description     | Standard Code | mm(In.)                                  |
|----------------------|---------------|------------------------------------------|
| PG Size              | A             | M12*1.5                                  |
| Fixed Screw Diameter | 4-B           | Φ8.5(0.33)                               |
| Case Diameter        | D             | Φ182.0(7.17)                             |
| Height               | H             | 71.5(2.82)                               |
| Ring Hole            | Z             | M12*1.75(Depth 20mm)<br>G1/2(Depth 17mm) |
| Ring Fixed Hole      | R             | M4*0.7                                   |
| Fixed Size           | W             | 162.0(6.38)                              |
| TC Point Position    | X             | 50(1.97)                                 |
| TC Point Position    | Y             | 10(0.39)                                 |



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-300CA Series LED Driver



## Assembly Tips

1. Highly recommended to seal the adjustable hole with silicon glue(#704 preferred) after adjusting the Driver's output current. Avoid permanent damage to adjust the potentiometer with suitable strength.
2. 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×W×H = 580mm×433mm×210mm;
- 8PCS/Carton;
- Net weight/Piece: 2.1kg;Gross weight/Carton: 17.8kg;
- 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     | Remove 24V Auxiliary Power Supply Function | 2019/07/16   |        |
| V02     | Update CCC Insulation Requirements         | 2019/10/29   |        |
| V03     | Update Structure Dimension Characteristics | 2020/04/07   |        |
| V04     | Update Cable length                        | 2020/04/27   |        |
| V05     | Update Tinned Length Of Wire               | 2021/07/02   |        |
| V06     | Update DIM Cable Color                     | 2021/09/02   |        |
| V07     | Increase Note About Dim To Off             | 2021/11/11   |        |
| V08     | Increase The Content Of DALI-2             | 2022/01/18   |        |
| V09     | Delete Timing                              | 2022/11/28   |        |
| V10     | Add Page Number                            | 2023/02/01   |        |