

# **SOSEN LED Driver, Your Smart Choice**

## Specifications

### **SS-150NH Series LED Driver**

Model: SS-150NH-260BH

Description: 150W LED Driver

Rev.: V05

Release Date: 2020-08-31

# SS-150NH Series LED Driver

**SOSEN**  
LED DRIVER



**LED DRIVER**

**NH Series**



## Features:

- Efficiency up to 95%
- Dimming: 0-10V,PWM,Resistor
- Isolated Dim-to-off
- AUX Power : 12V/0.2A
- Standby power<0.5W
- Protections: SCP/OTP/OVP
- Surge protection: CM: 4kV, DM: 4kV
- Warranty: 5 years



## Description :

SS-150NH series are 150W non-isolated constant current LED Driver with 90-305VAC. It is suitable for wall washers, high pole lights and flood lights. It has DIM to Off, high efficiency, isolated auxiliary power supply, compact housing ,fully potted , high reliability, high cost performance and other advantages.

## Model List:

| Model          | AC Input Range | Max. Pout | Vout Range | Full Power Vo Range | Iout       | THD(Typ.) | PF(Typ.) | Eff.(Typ.) | Max.Tc |
|----------------|----------------|-----------|------------|---------------------|------------|-----------|----------|------------|--------|
| SS-150NH-260BH | 90-305Vac      | 150W      | 180-260V   | 200V-260V           | 0.52-0.75A | 7%        | 0.97     | 95%        | 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.Suffix BH for model with 3-in-1 dimming (0-10V, PWM, Resistor)+AUX.

# SS-150NH Series LED Driver

## Input Characteristics:

| Parameter                  | Min.   | Typ.    | Max.   | Remark                         |
|----------------------------|--------|---------|--------|--------------------------------|
| Rated AC Input Range       | 100Vac |         | 277Vac | Ref. derating curve            |
| AC Input Range             | 90Vac  |         | 305Vac | Ref. derating curve            |
| Input Frequency Range      | 47Hz   | 50/60Hz | 63Hz   |                                |
| Max Input Current          |        |         | 1.8A   | 100Vac, Full load              |
| Max Input Power            |        |         | 180W   | 100Vac, Full load              |
| Max Inrush Current(120Vac) |        |         | 60A    | Cold start                     |
| Max Inrush Current(220Vac) |        |         | 100A   | Cold start                     |
| Max Inrush Current(277Vac) |        |         | 130A   | Cold start                     |
| Standby Power              |        |         | 0.5W   | 220Vac/50Hz, Dim to off        |
| Power Factor               | 0.95   | 0.97    |        | 220Vac/50Hz, Full load         |
|                            | 0.90   |         |        | 100-277Vac/50Hz, 80%-100% load |
| THD                        |        | 7%      | 10%    | 220Vac/50Hz, Full load         |
|                            |        |         | 20%    | 100-277Vac/50Hz,70%-100% load  |

# SS-150NH Series LED Driver

## Output Characteristics:

| Parameter                    | Min.      | Typ.  | Max.      | Remark                                                           |
|------------------------------|-----------|-------|-----------|------------------------------------------------------------------|
| O/P Voltage Range            | 180V      |       | 260V      | Power derated @180-200V                                          |
| Rated O/P Voltage            | 200V      |       | 260V      | $P_o = V_o \cdot I_o = 150W$ , Full load                         |
| Rated O/P Current            | 0.57A     |       | 0.75A     | 0.75A for 200V, 0.57A for 260V                                   |
| Adj. O/P Current (AOC) Range | 0.52A     |       | 0.75A     |                                                                  |
| No Load Voltage              |           |       | 310V      |                                                                  |
| Efficiency @120Vac           | 90.0%     | 92.0% |           | Output 260V/0.57A                                                |
| Efficiency @220Vac           | 93.0%     | 95.0% |           | Output 260V/0.57A                                                |
| Efficiency @277Vac           | 93.0%     | 95.0% |           | Output 260V/0.57A                                                |
| 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                |           |       | 1S        | 120Vac, Full load                                                |
|                              |           |       | 0.5S      | 220Vac, Full load                                                |
| Line Regulation              | -2%       |       | +2%       | Full load                                                        |
| Load Regulation              | -3.5%     |       | +3.5%     |                                                                  |
| Temperature Coefficient      | -0.03%/°C |       | +0.03%/°C | $T_c: 0^{\circ}C \sim 90^{\circ}C$                               |
| OTP                          | 90°C      | 100°C | 110°C     | > $T_c$ Typ., Current derating<br>< $T_c$ Min., Current recovery |
| Short Circuit Protection     |           |       | 10W       | Driver will not be damaged, Hiccup mode                          |

# SS-150NH Series LED Driver

## Other Characteristics:

| Parameter         |               | Min.              | Typ. | Max.      | Remark                                        |
|-------------------|---------------|-------------------|------|-----------|-----------------------------------------------|
| Aux Power         | O/P Voltage   | 11.4V             | 12V  | 13V       |                                               |
|                   | O/P Current   |                   |      | 200mA     |                                               |
| 0-10V Dimming     | Dim Vmax      | 0V                |      | 12V       | DIM+ can output 110uA current.                |
|                   | Dim Range     | 10%Iomax          |      | 100%Ioset | Dimming prohibits reverse connection          |
|                   | Rec.Dim Range | 0V                |      | 10V       |                                               |
| PWM Dimming       | PWM High      | 9.8V              |      | 10.2V     | DIM+ can output 110uA current.                |
|                   | PWM Low       | 0V                |      | 0.3V      | Dimming prohibits reverse connection          |
|                   | Frequency     | 1KHz              |      | 2KHz      |                                               |
|                   | PWM Duty      | 0%                |      | 100%      |                                               |
| Resistor Dimming  | Resistance    | 0Kohm             |      | 100Kohm   | DIM+ can output 110uA current.                |
|                   | Dim Range     | 10%Iomax          |      | 100%Ioset |                                               |
| Dim to Off        | Dim off       | 0.5V              | 0.7V | 0.9V      |                                               |
|                   | Dim on        | 0.5V              | 0.9V | 1.0V      |                                               |
| Lifetime(Tc≤76°C) |               | ≥62,000 hours     |      |           | 80% load                                      |
| MTBF              |               | 201,000 hours     |      |           | 220Vac, Full load, Ta=25°C<br>(MIL-HDBK-217F) |
| Tc                |               | 90°C              |      |           |                                               |
| Warranty          |               | 5 years           |      |           | Tc : 75°C                                     |
| Net Weight        |               | 650g              |      |           |                                               |
| Dimension         |               | 174mm*57.5mm*34mm |      |           | L x W x H                                     |

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

# SS-150NH 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                                                       | ✓      |        |
| TUV           | EN 61347-2-13:2014/A1:2017<br>EN61347-1:2015<br>EN62493:2015 | ✓      |        |
| 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 |                             |
| Radiation Emission         | EN55015:2013+A1:2015 |                             |
| Harmonic Current Emissions | IEC/EN 61000-3-2     | Class C                     |
| Surge                      | IEC/EN61000-4-5      | DM: 4kV,CM: 4kV,Criterion B |
| Ring Wave                  | IEC/EN 61000-4-12    | DM: 4kV,CM: 4kV,Criterion B |

# SS-150NH Series LED Driver

## Safety Test Items:

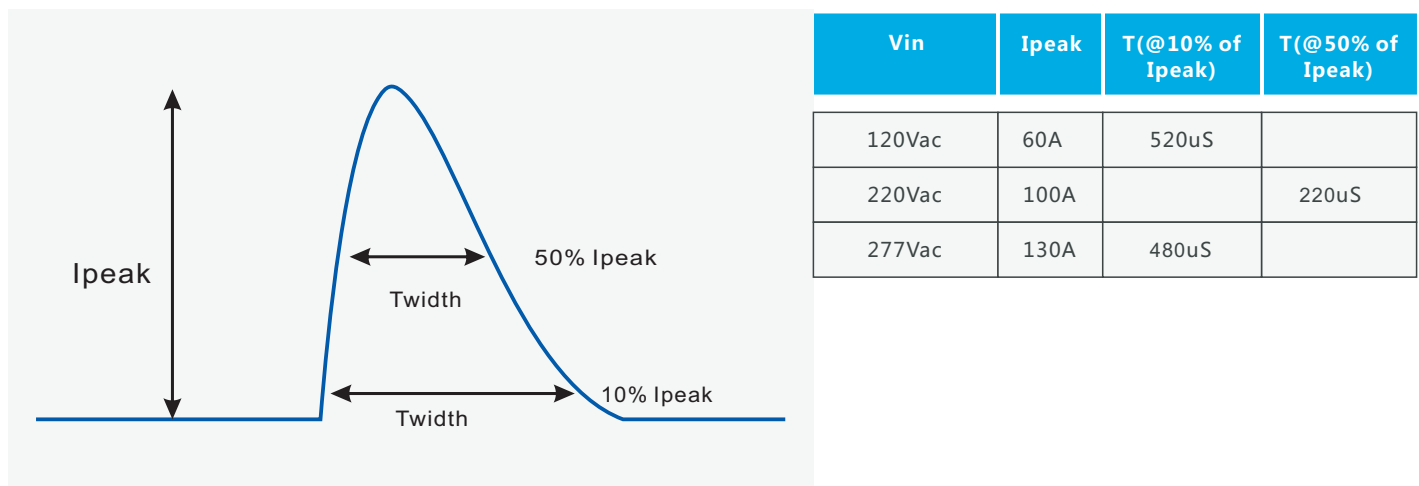
| Safety Test Items       | Technical Indicators       |                             | Remark                          |
|-------------------------|----------------------------|-----------------------------|---------------------------------|
| Insulation Requirements | UL Insulation Requirements | TUV Insulation Requirements |                                 |
| Input-Case              | 1600Vac                    | 1500Vac                     | Basic insulation                |
| Input-Dim               | 1600Vac                    | 3000Vac                     | Reinforced insulation           |
| Dim-Case                | 500Vac                     | 250Vac                      | Basic insulation                |
| Insulation Resistance   | $\geq 10M\Omega$           |                             | Input-Dim, 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:

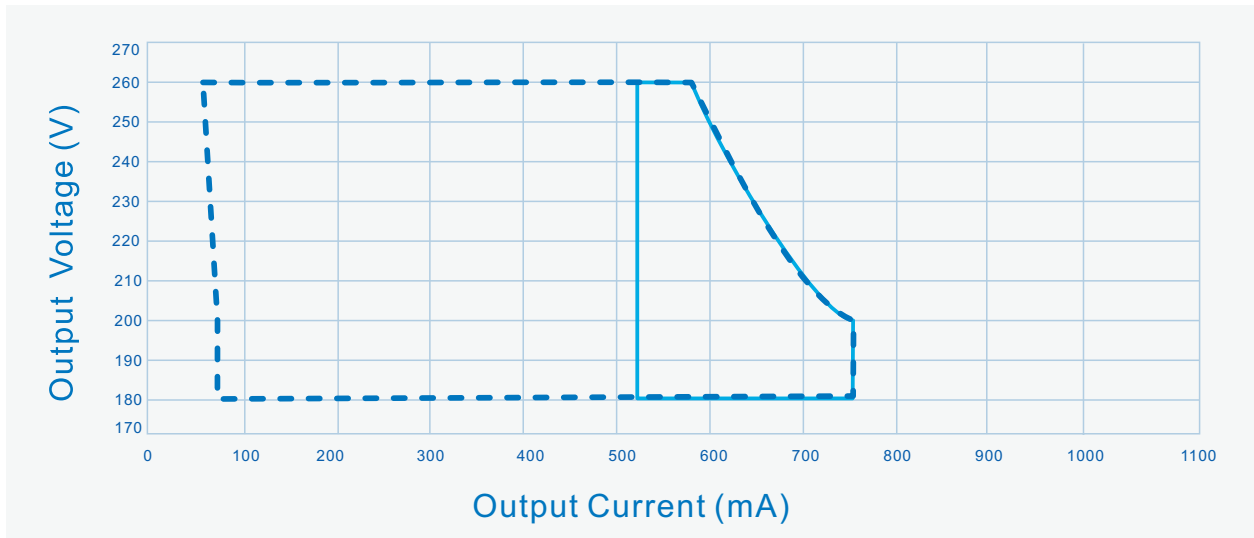
### Input Inrush Current



# SS-150NH Series LED Driver

## Performance Curves:

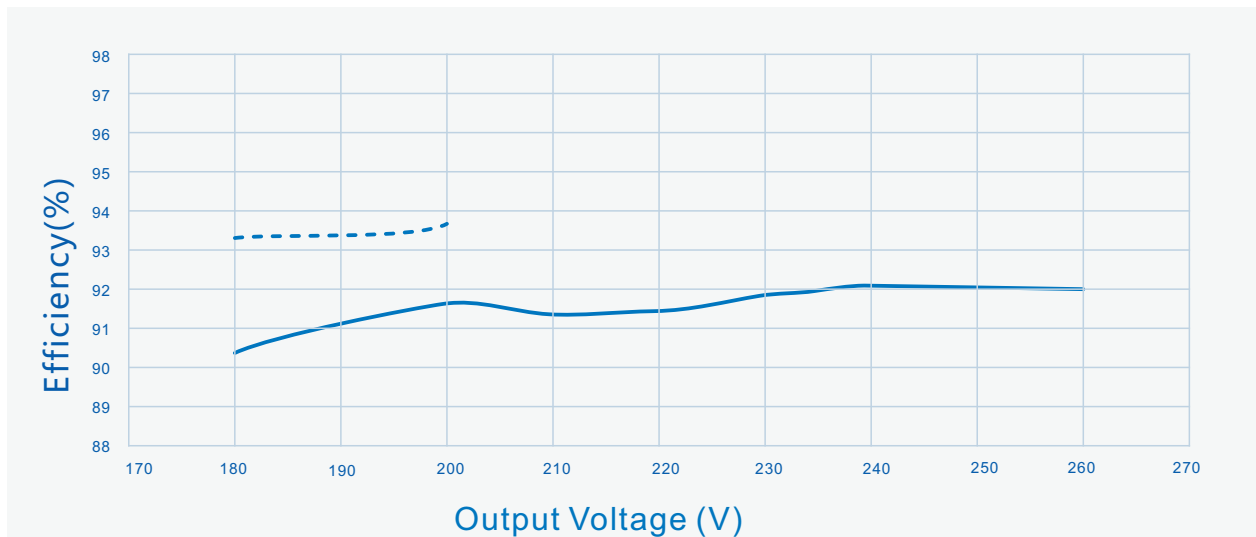
Output Voltage Vs. Output Current(Dim/AOC Window)



----- Dimming Window

————— AOC Window

Efficiency Vs. Output Voltage (Vin=120Vac)



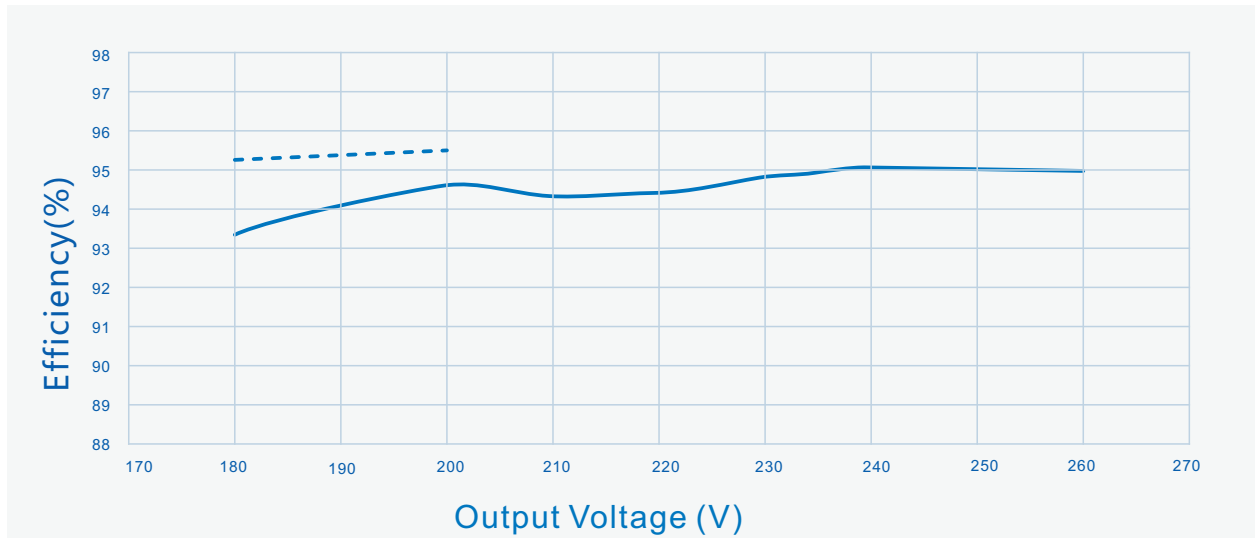
----- Io=750mA

————— Io=570mA

# SS-150NH Series LED Driver

## Performance Curves:

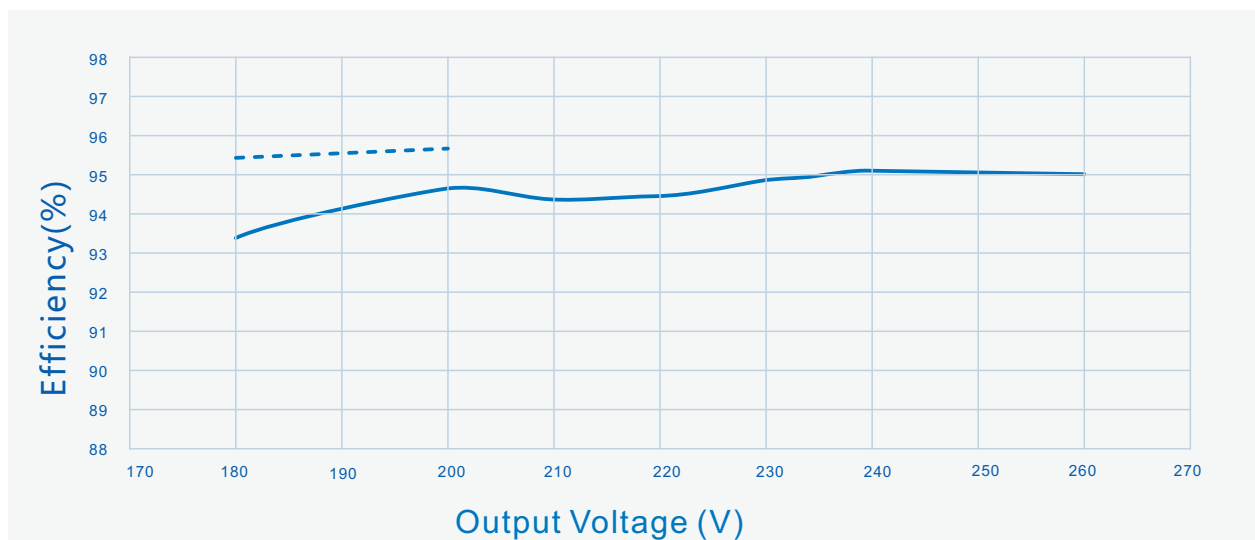
Efficiency Vs. Output Voltage ( $V_{in}=220V_{ac}$ )



-----  $I_o=750mA$

—————  $I_o=570mA$

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



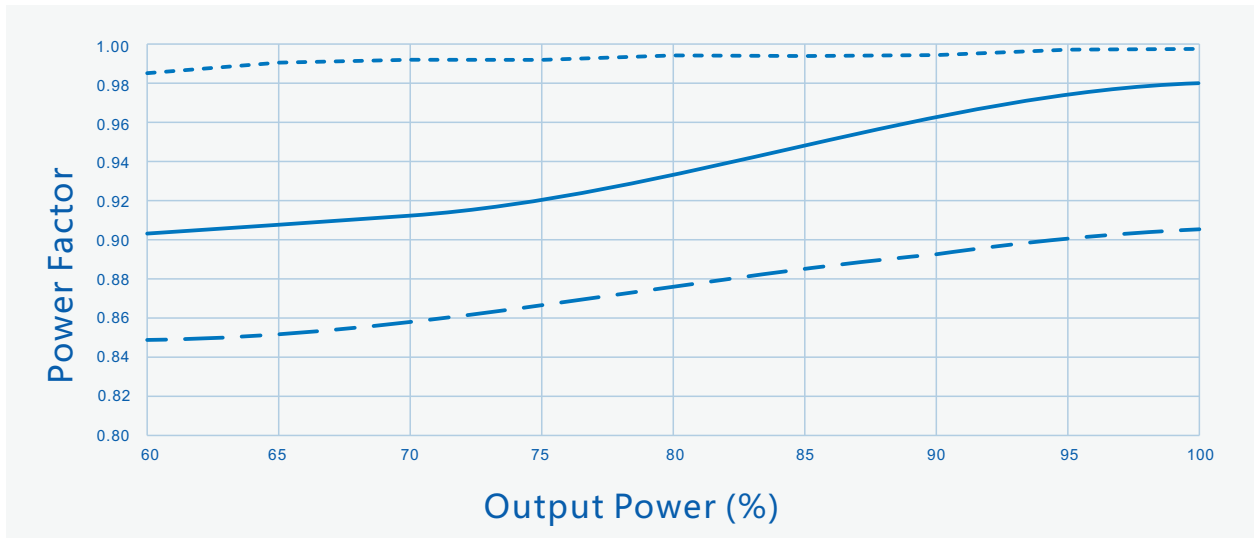
-----  $I_o=750mA$

—————  $I_o=570mA$

# SS-150NH Series LED Driver

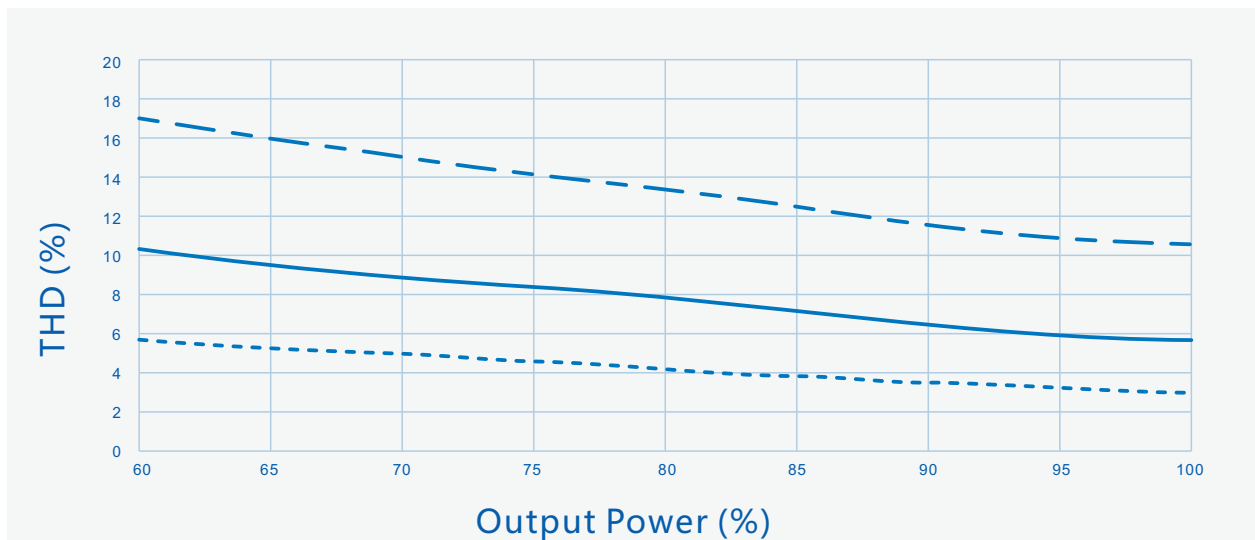
## Performance Curves:

Power Factor Vs. Output Power



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

THD Vs. Output Power

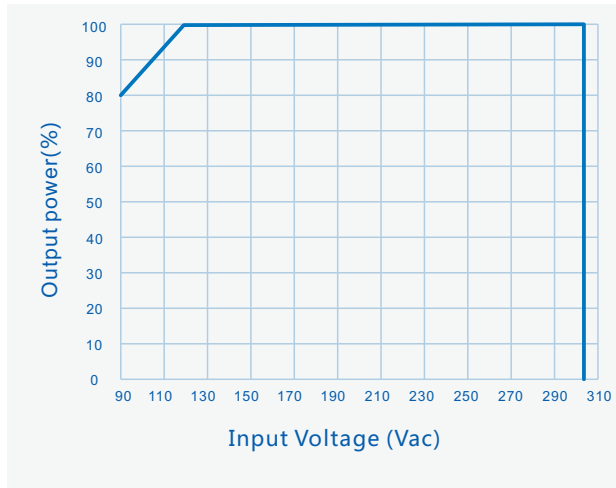


----- Vin=120Vac      ————— Vin=220Vac      - - - Vin=277Vac

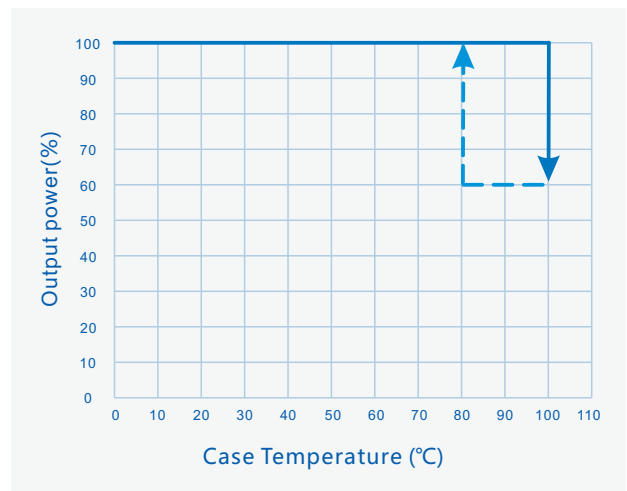
# SS-150NH Series LED Driver

## Performance Curves:

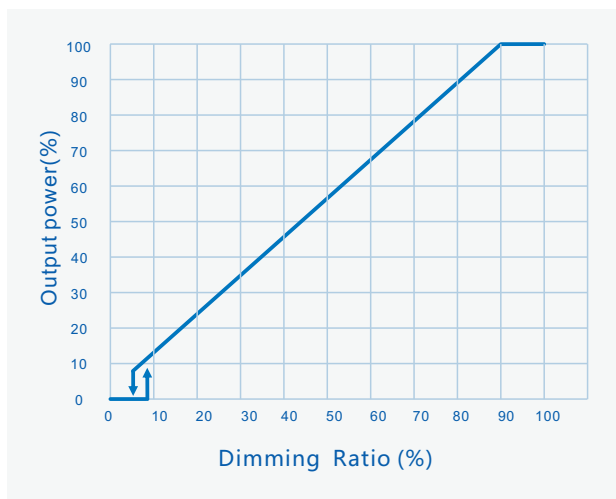
Output power Vs. Input Voltage  
(Ta Max.50°C)



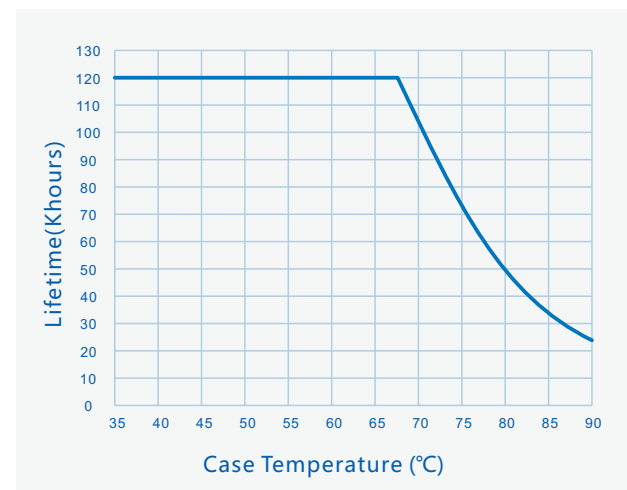
Output power Vs. Case Temperature



Output Power Vs. Dimming

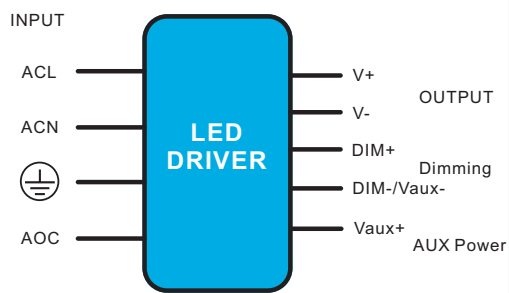


Lifetime Vs. Case Temperature



# SS-150NH Series LED Driver

## Mechanical Characteristics



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

UL/EU model: 18AWG 105°C 600V I.D: 1.0mm O.D: 2.7mm,Black:L,White:N,Green:⊕

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

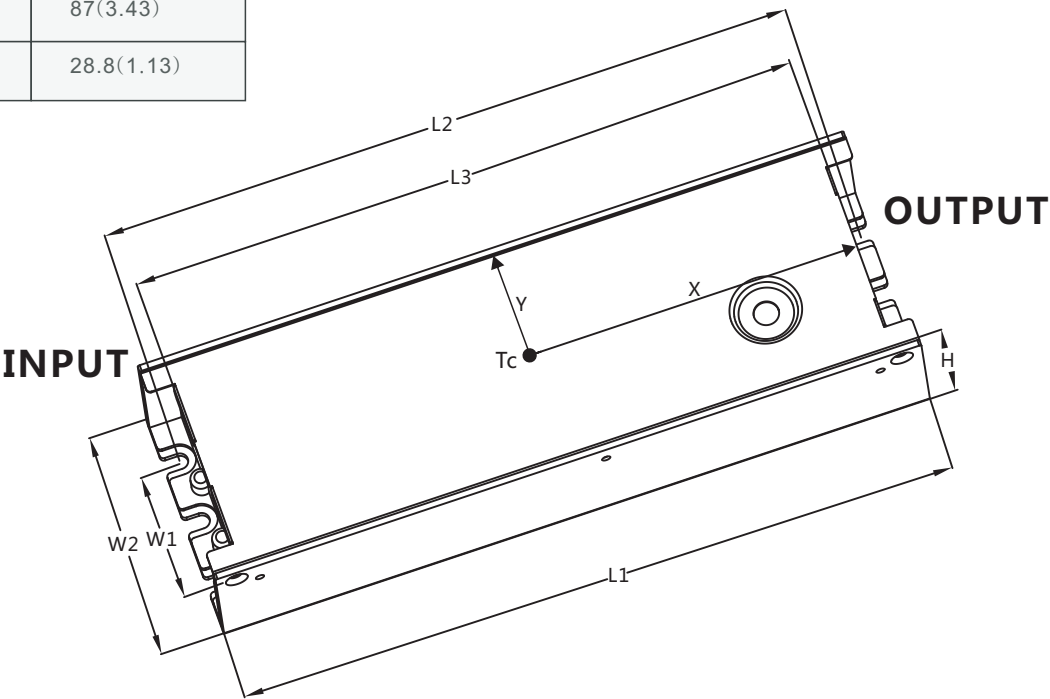
UL/EU model: 18AWG 105°C 600V I.D: 1.0mm O.D: 2.7mm,Red:V+ , Black:V-

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

UL/EU model: 18AWG 105°C 600V I.D: 1.0mm O.D: 2.7mm , Purple : DIM+, Gray: DIM- White: Vaux+,

| Name<br>Description     | Standard<br>Code | mm(In.)     |
|-------------------------|------------------|-------------|
| Case Length             | L3               | 161.5(6.36) |
| Case Width              | W2               | 57.5(2.26)  |
| Case Height             | H                | 34(1.34)    |
| Overall Length          | L1               | 174(6.85)   |
| Mounting Hole<br>Length | L2               | 166(6.54)   |
| Mounting Hole<br>Width  | W1               | 32(1.26)    |
| TC point<br>position    | X                | 87(3.43)    |
| TC point<br>position    | Y                | 28.8(1.13)  |

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:  
Tinned length of wire:6±1mm



# SS-150NH 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.
3. Withstand voltage of dielectric layers between aluminum PCB and LED>3KV.
4. Safety space between aluminum base and LED coppers >5mm.
5. Safety space/coppers between LED+ and LED- >1.8mm.
6. Minimize the copper area on the aluminum PCB to reduce parasitic capacitance and leakage current.
7. It is recommended to design LED beads in parallel first and then in series.

## Package

- Outside carton dimension: L×W×H =495mm×385mm×162mm;
- 20PCS/Carton;
- Net weight/Piece: 0.65kg;Gross weight/Carton: 14.7kg;
- 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 European Directive 2011/65/EC.

Revision History

| Version | Description of Update              | Updated Date | Remark |
|---------|------------------------------------|--------------|--------|
| V00     | Original Release                   | 2019/08/14   |        |
| V01     | Delete CCC Insulation Requirements | 2019/11/14   |        |
| V02     | Update Assembly Tips               | 2019/12/10   |        |
| V03     | Update Structure Dimension         | 2020/04/11   |        |
| V04     | Increase TUV Certification         | 2020/07/18   |        |
| V05     | Update Package Quantity            | 2020/08/31   |        |

