

# SOSEN LED Driver, Your Smart Choice

## Specifications

### SS-40NL-E Series LED Driver

Model: SS-40NL-E130B

Description: 40W LED Driver

Rev.: V01

Release Date: 2022-09-07

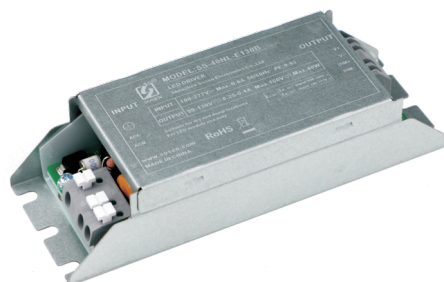
# SS-40NL-E Series LED Driver

**SOSEN**  
LED DRIVER



**LED DRIVER**

**NL-E Series**



## Features:

- Efficiency up to 91%
- Isolated dimming: 0-10V, PWM, Resistor
- Isolated Dim-to-off
- Protections: SCP/OVP
- Surge protection: CM: 6kV, DM: 4kV
- Warranty: 5 years



## Description :

SS-40NL-E series are 40W non-isolated constant current LED Driver with 90-305VAC. It has DIM to Off, high efficiency, compact housing, high reliability, high cost performance and other advantages.

### Applications:

Linear high bay lighting, Wall lamp, Flood lighting

## Model List:

| Model         | AC Input Range | Max. Pout | Vout Range | Full Power Vo Range | Iout      | THD(Typ.) | PF(Typ.) | Eff.(Typ.) | Max.Tc |
|---------------|----------------|-----------|------------|---------------------|-----------|-----------|----------|------------|--------|
| SS-40NL-E130B | 90-305Vac      | 40W       | 90-130V    | 100-130V            | 0.25-0.4A | 8%        | 0.97     | 91%        | 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 B for model with 3-in-1 dimming (0-10V, PWM, Resistor).

# SS-40NL-E 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          |        |         | 0.6A   | 100Vac, Full load              |
| Max Input Power            |        |         | 60W    | 100Vac, Full load              |
| Max Inrush Current(120Vac) |        |         | 10A    | Cold start                     |
| Max Inrush Current(220Vac) |        |         | 15A    | Cold start                     |
| Max Inrush Current(277Vac) |        |         | 20A    | Cold start                     |
| No Load Power              |        |         | 3W     | 220Vac/50Hz                    |
| Power Factor               | 0.95   | 0.97    |        | 220Vac/50Hz, Full load         |
|                            | 0.90   |         |        | 100-277Vac/50Hz, 80%-100% load |
| THD                        |        | 8%      | 10%    | 220Vac/50Hz, Full load         |
|                            |        |         | 20%    | 100-277Vac/50Hz,80%-100% load  |

# SS-40NL-E Series LED Driver

## Output Characteristics:

| Parameter                  | Min.  | Typ.  | Max. | Remark                                  |
|----------------------------|-------|-------|------|-----------------------------------------|
| O/P Voltage Range          | 90V   |       | 130V | Power derated @90-100V                  |
| Rated O/P Voltage          | 100V  |       | 130V | $P_o = V_o \cdot I_o = 40W$ , Full load |
| Rated O/P Current          | 0.25A |       | 0.4A | $P_o = V_o \cdot I_o = 40W$ , Full load |
| No Load Voltage            |       |       | 160V |                                         |
| Efficiency @120Vac         | 87.5% | 89.5% |      | Output 130V/0.3A                        |
| Efficiency @220Vac         | 89.0% | 91.0% |      | Output 130V/0.3A                        |
| Efficiency @277Vac         | 88.5% | 90.5% |      | Output 130V/0.3A                        |
| 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%  |                                         |
| Short Circuit Protection   |       |       |      | Driver will not be damaged, Hiccup mode |

# SS-40NL-E Series LED Driver

## Other Characteristics:

| Parameter                   |               | Min.            | Typ. | Max.      | Remark                                   |
|-----------------------------|---------------|-----------------|------|-----------|------------------------------------------|
| 0-10V Dimming (Optional)    | Dim Vmax      | 0V              |      | 12V       | DIM+ source current 100uA.               |
|                             | 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 100uA.               |
|                             | 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 100uA.               |
|                             | Dim Range     | 10%Iomax        |      | 100%Ioset |                                          |
| Dim to Off                  | Dim off       | 0.3V            | 0.5V | 0.7V      |                                          |
|                             | Dim on        | 0.5V            | 0.7V | 0.9V      |                                          |
| Lifetime(Tc≤75℃)            |               | ≥55,000 hours   |      |           | 80% load,220Vac                          |
| MTBF                        |               | 201,000 hours   |      |           | 220Vac,Full load, Ta=25℃ (MIL-HDBK-217F) |
| Tc                          |               | 90℃             |      |           |                                          |
| Warranty                    |               | 5 years         |      |           | Tc : 75℃                                 |
| Net Weight                  |               | 180g            |      |           |                                          |
| Dimension                   |               | 130mm*46mm*30mm |      |           | L x Wx H                                 |

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

# SS-40NL-E Series LED Driver

## Environmental Requirements

| Parameter                    | Min.  | Typ. | Max.  | Remark |
|------------------------------|-------|------|-------|--------|
| Operating Temperature(Tcase) | -30℃  | 25℃  | +90℃  |        |
| Storage Temperature          | -30℃  | 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>EN 61347-1:2008+A1:2011+A2:2013        |        |        |

| EMI/EMS                    | Criterion                     | Remark                      |
|----------------------------|-------------------------------|-----------------------------|
| Conduction Emission        | EN IEC 55015:2019+A11:2020    |                             |
| Radiation Emission         | EN IEC 55015:2019+A11:2020    |                             |
| Harmonic Current Emissions | IEC/EN 61000-3-2:2019+A1:2021 | Class C                     |
| Surge                      | IEC/EN61000-4-5               | DM: 4kV,CM: 6kV,Criterion B |

# SS-40NL-E Series LED Driver

## Safety Test Items:

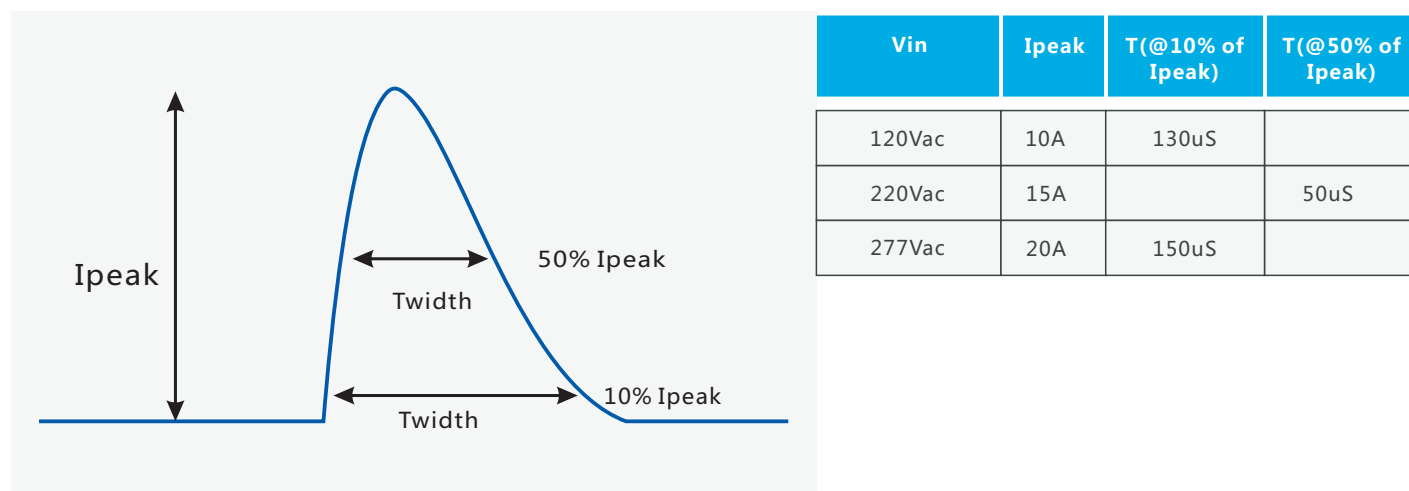
| Safety Test Items       | Technical Indicators       |                             | Remark                          |
|-------------------------|----------------------------|-----------------------------|---------------------------------|
| Insulation Requirements | UL Insulation Requirements | TUV 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.

## Performance Curves:

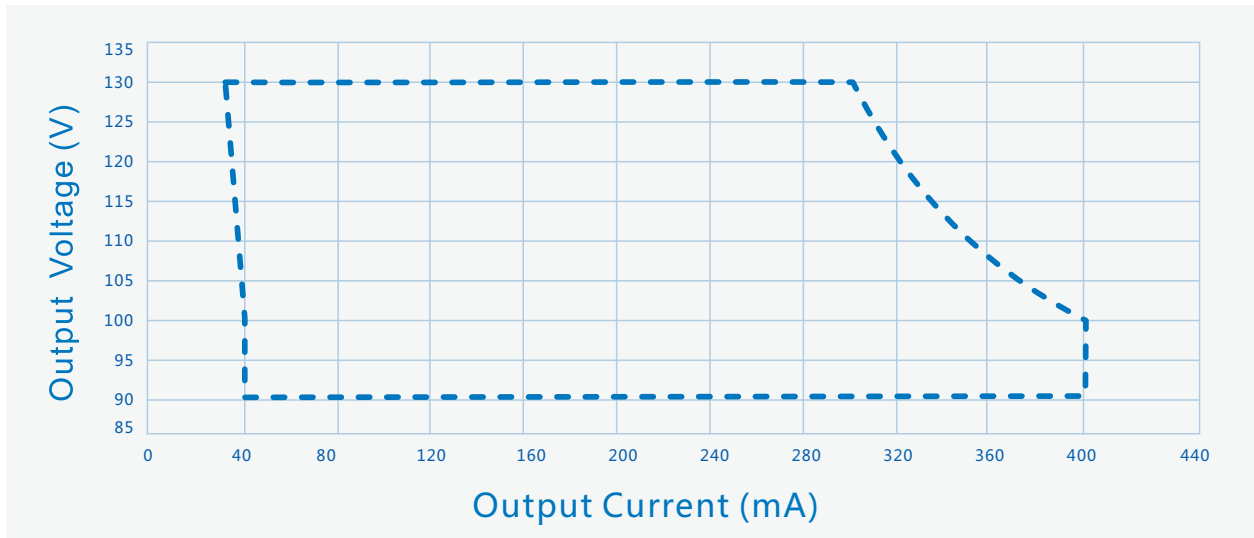
### Input Inrush Current



# SS-40NL-E Series LED Driver

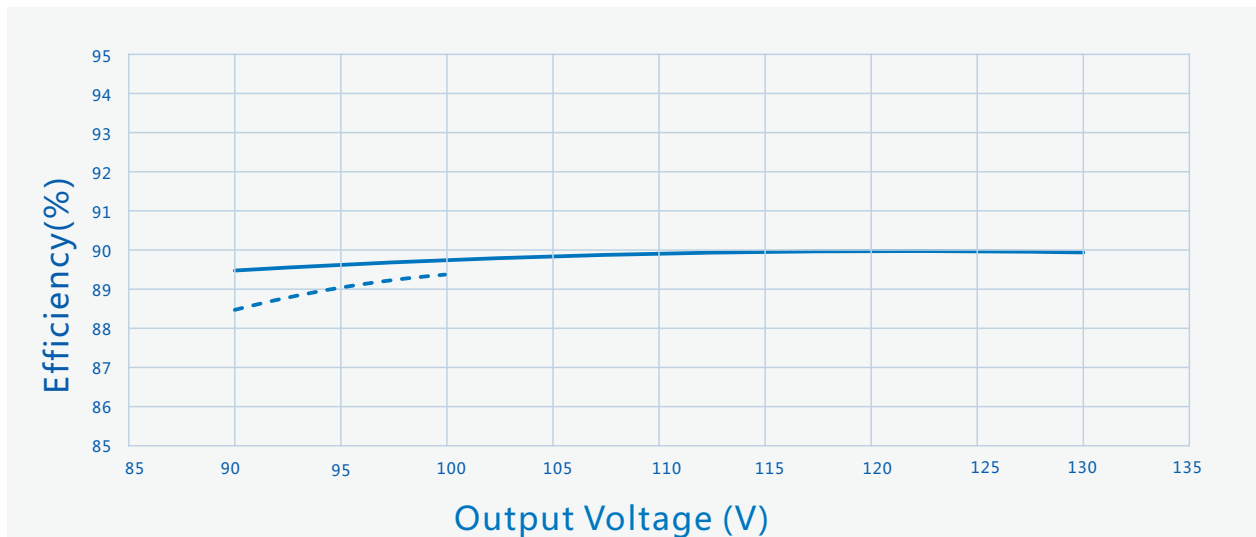
## Performance Curves:

Output Voltage Vs. Output Current(Dim Window)



----- Dimming Window

Efficiency Vs. Output Voltage (Vin=120Vac)



----- Io=400mA

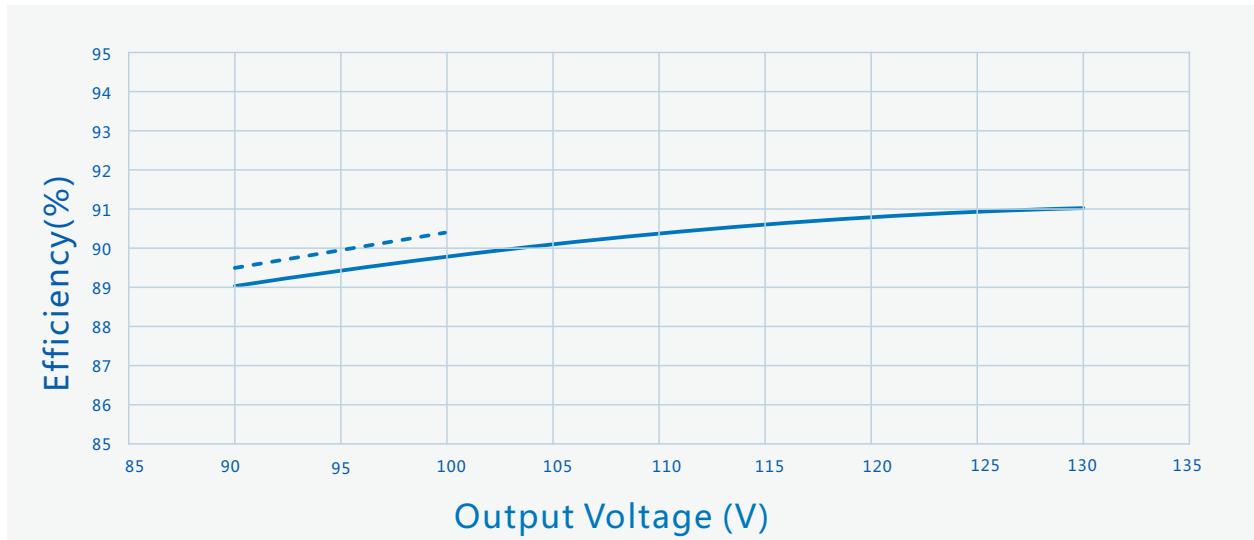
———— Io=300mA



# SS-40NL-E Series LED Driver

## Performance Curves:

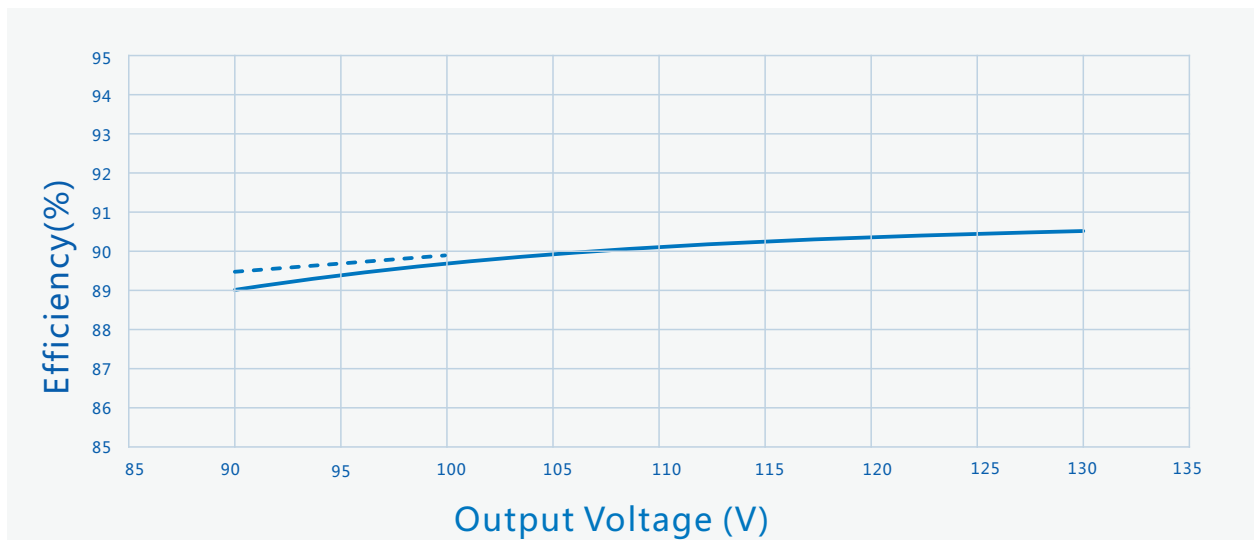
Efficiency Vs. Output Voltage ( $V_{in}=220V_{ac}$ )



-----  $I_o=400mA$

—————  $I_o=300mA$

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



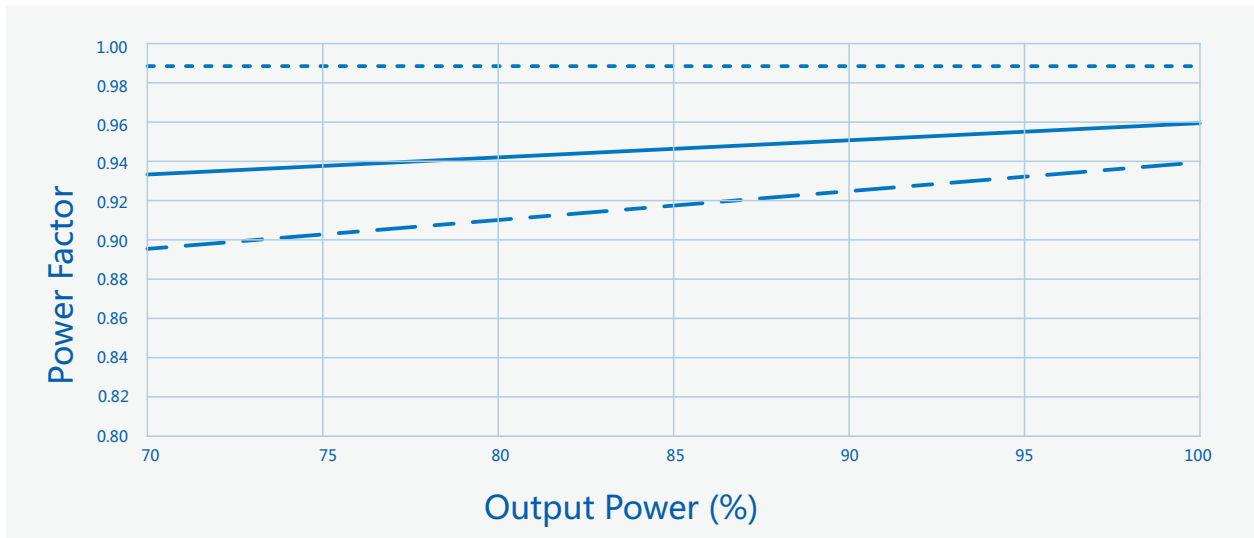
-----  $I_o=400mA$

—————  $I_o=300mA$

# SS-40NL-E Series LED Driver

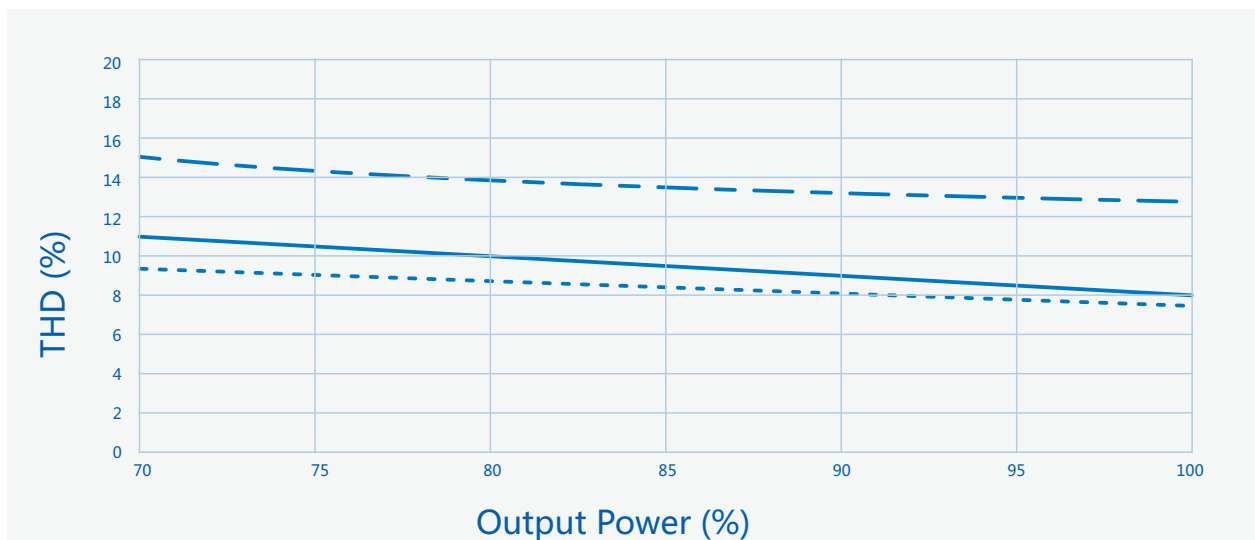
## Performance Curves:

### Power Factor Vs. Output Power



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

### THD Vs. Output Power

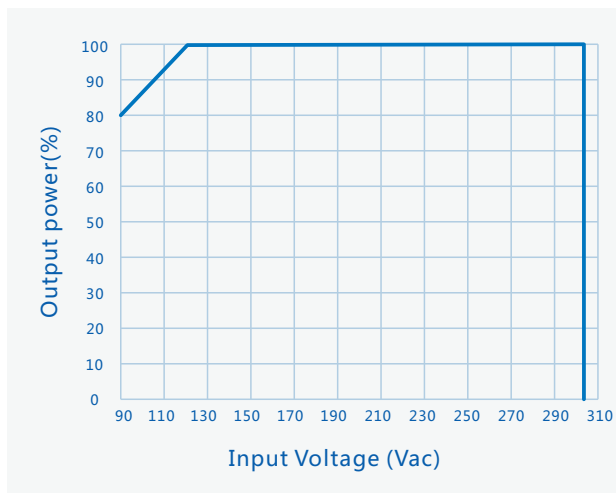


----- Vin=120Vac      ————— Vin=220Vac      - - - - Vin=277Vac

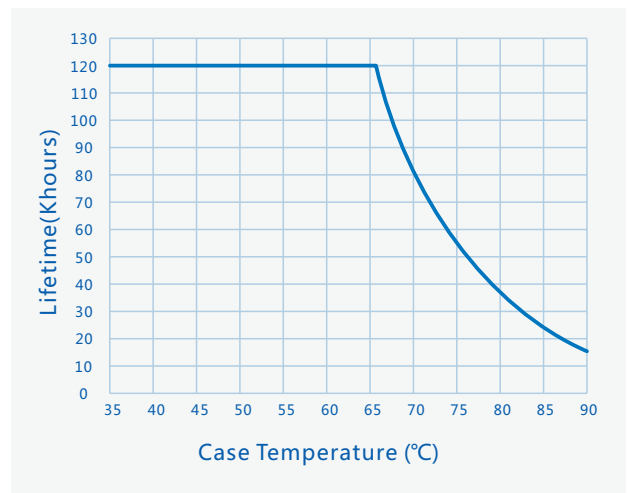
# SS-40NL-E Series LED Driver

## Performance Curves:

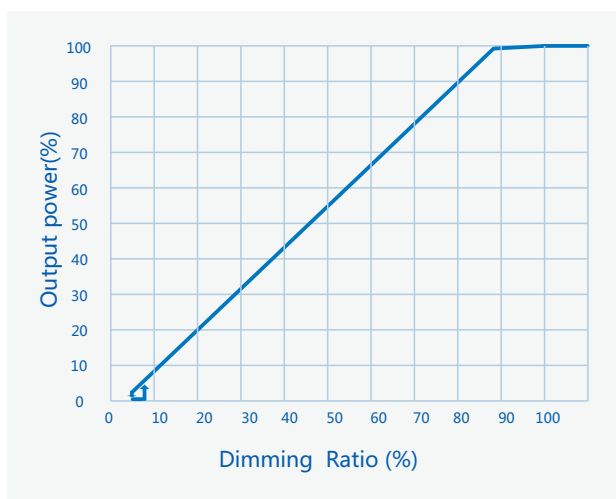
### Output Power Vs. Input Voltage



### Lifetime Vs. Case Temperature



### Output Power Vs. Dimming



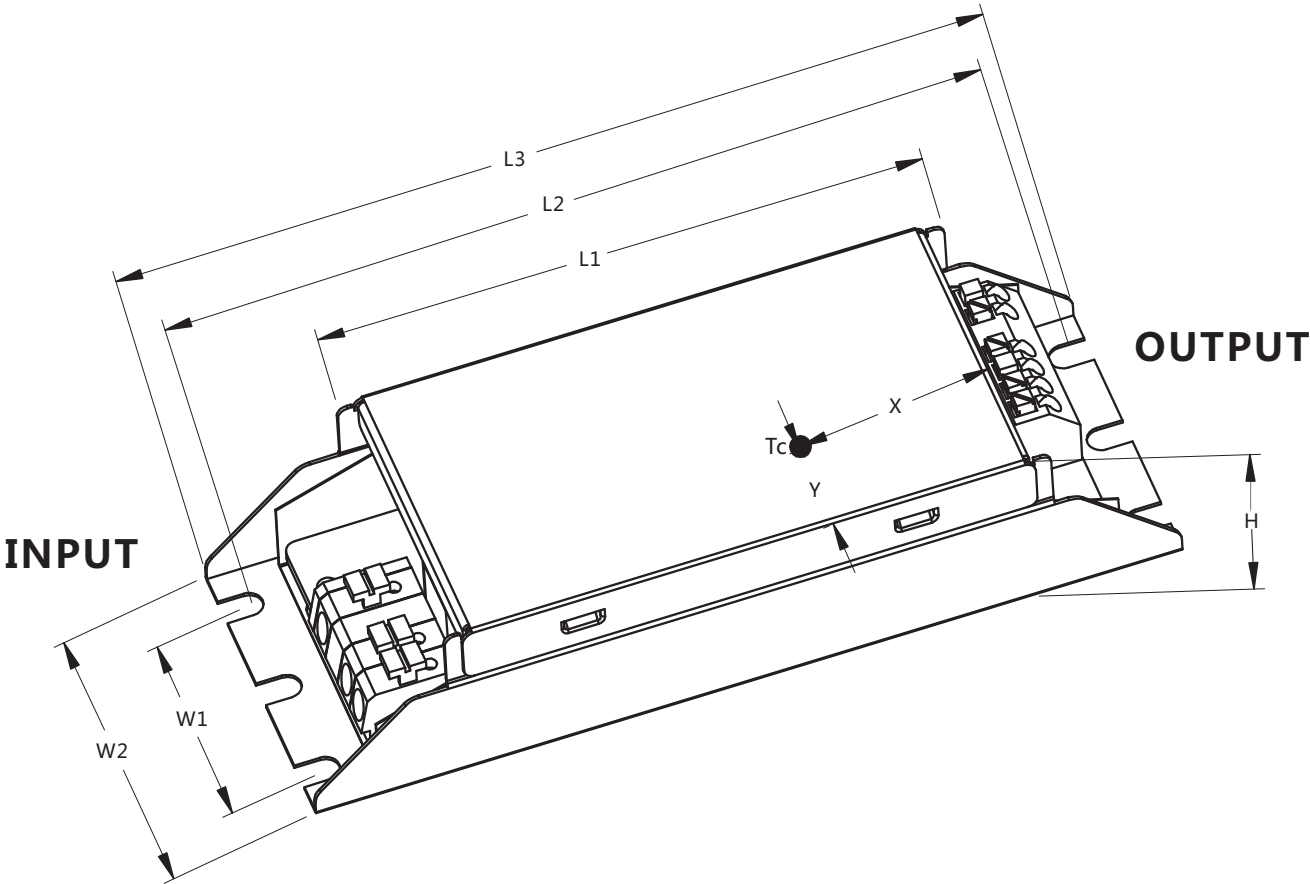
— 0-10V,PWM,Resistor

# SS-40NL-E Series LED Driver

## Mechanical Characteristics

| Name<br>Description  | Standard<br>Code | mm(In.)     |
|----------------------|------------------|-------------|
| Case Length          | L3               | 130(8.78)   |
| Case Width           | W2               | 46(1.89)    |
| Case Height          | H                | 30(1.34)    |
| Overall Length       | L1               | 91(9.06)    |
| Mounting Hole Length | L2               | 122.5(8.74) |
| Mounting Hole Width  | W1               | 32(1.26)    |
| TC Point Position    | X                | 35(1.38)    |
| TC Point Position    | Y                | 18(0.71)    |

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



# SS-40NL-E Series LED Driver



## Assembly Tips

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

## Package

- Outside carton dimension: L×W×H = 495mm×385mm×162mm;
- 42PCS/Carton;
- Net weight/Piece: 0.18kg; Gross weight/Carton: 9.06kg;
- 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        | 2022/07/29   |        |
| V01     | Update Package Quantity | 2022/09/07   |        |
|         |                         |              |        |
|         |                         |              |        |
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