

## Specification for Approval

Product Name:            150W Constant Voltage LED Driver  
Product Model:        LSV-150B036  
Product Code:        MS020609-U0  
                                 Rev.            A.1  
Sample Date:

| CUSTOMER AUTHORIZED SIGNATURE                                                   |            |             |
|---------------------------------------------------------------------------------|------------|-------------|
| Tested By                                                                       | Checked By | Approved By |
|                                                                                 |            |             |
| (Company seal)Return one copy to MOSO with approved signature and company seal. |            |             |

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|             |            |             |



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## ECN History

[illegible]

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## 1 Scope

This document defines the electrical, mechanical and environmental specifications of a 150W constant voltage LED driver. The LED driver shall meet the RoHS requirement.

This enclosure of LED driver is:

☒ With AL Case      ☐ With Plastic Case      ☐ Open Frame      ☐ Others

Note: For all items do not list test temperature in this document, all tests are under  $25^{\circ}\text{C}\pm 10^{\circ}\text{C}$  ambient temperature.

## 2 Input Characteristics

### 2.1 Input Voltage and Frequency

| Item            | Minimum | Nominal    | Maximum |
|-----------------|---------|------------|---------|
| Input Voltage   | 90Vac   | 100-277Vac | 305Vac  |
| Input Frequency | 47Hz    | 60Hz/50Hz  | 63Hz    |

### 2.2 AC Input Current

Under  $25^{\circ}\text{C}\pm 10^{\circ}\text{C}$  ambient temperature, rated input and output range (reference input voltage –Load curve), maximum AC input current value is 2.0A.

### 2.3 Inrush Current(Cold Start)

Under  $25^{\circ}\text{C}\pm 10^{\circ}\text{C}$  ambient temperature, 230Vac input, the peak value of the inrush current is less than 75 A.

### 2.4 Power Factor

2.4.1 Under  $25^{\circ}\text{C}\pm 10^{\circ}\text{C}$  ambient temperature, 230Vac input, 100% load, the typical value of power factor is 0.96; the minimum value is 0.95(reference Power Factor vs. Load Curve).

### 2.5 Efficiency

2.5.1 Under  $25^{\circ}\text{C}\pm 10^{\circ}\text{C}$  ambient temperature, 230Vac input, 100% load, the typical value of efficiency is 91% the minimum value of efficiency is 89%(reference Efficiency vs. Load Curve).

### 2.6 Input Current THD

2.6.1 Under  $25^{\circ}\text{C}\pm 10^{\circ}\text{C}$  ambient temperature, 230Vac input, 70~100% load, the maximum value of input current THD is 15%(reference THDi Curve).

## 3 Output Characteristics

### 3.1 Output Power

Under full input voltage range(reference Input Voltage vs. Load Curve), the maximum value of output power is 150 W.

### 3.2 Output voltage and Current

| Item(Unit)               | Value  | Test Condition(Under 25℃±10℃ Ambient Temperature) |
|--------------------------|--------|---------------------------------------------------|
| Maximum Output Power(W)  | 150    | full input voltage range                          |
| Rated Output Voltage(V)  | 36     | full input voltage range                          |
| Load Current Range(A)    | 0~4.17 | full input voltage range                          |
| Output Voltage Precision | ±5%    | full input voltage range, full load range         |
| No Load Voltage(V)       | ≤37.8  | full input voltage range                          |

### 3.3 Output Voltage Ripple

Under 25℃±10℃ ambient temperature, 230Vac input, 100% load, the ratio of output voltage ripple peak value and average output voltage is less than 2%.

### 3.4 Turn-On Delay Time

Under 25℃±10℃ ambient temperature, 230Vac input, 100% load, turn-on delay time at cold start is less than 0.5s, 115Vac input, at cold start is less than 1s.

### 3.5 Output Voltage Overshoot

Under 25℃±10℃ ambient temperature, 100% load, turn-on at full input voltage range, the ratio of output voltage overshoot and rated output voltage is less than 10%.

### 3.6 Line Regulation

Under 25℃±10℃ ambient temperature, 100% load, change input from 115Vac to 305Vac, line regulation is less than 3 %.

### 3.7 Load Regulation

Under 25℃±10℃ ambient temperature, 230Vac input voltage, change load from 50 % to 100 %, load regulation is less than 3 %.

## 4 Protection

### 4.1 Short Circuit Protection

The input power shall decrease when the output rail short, the power supply shall not be damaged.

### 4.2 Over Temperature Protection

When the Tc is over 90℃, the driver shuts off automatically and enters protection status.

### 4.3 Over Current Protection

The product will enter hiccup status when 1.3 maximum load current applied to the output, and the product shall be self-recovery when the fault condition is removed.

### 4.4 Over Voltage Protection

When the output voltage is over 1.1-1.3 Rated Load Voltage, the driver shuts off automatically and enters

protection status, the driver will work normally after fault condition removed and AC input reapply.

## 5 Safety and Electromagnetic Compatibility

### 5.1 Safety Standards

| Safety Category | Country and region | Standards                                                                    | Accordant |
|-----------------|--------------------|------------------------------------------------------------------------------|-----------|
| CCC             | China              | GB19510.1                                                                    |           |
|                 |                    | GB19510.14                                                                   |           |
| CE              | Europe             | EN61347-1                                                                    |           |
|                 |                    | EN61347-2-13                                                                 |           |
| CB              | CB member          | IEC61347-1                                                                   |           |
|                 |                    | IEC61347-2-13                                                                |           |
| UL              | America            | UL 8750                                                                      | √         |
|                 |                    | UL 1310 (Class 2 Power Units)                                                |           |
|                 |                    | UL 1012                                                                      |           |
| CUL             | Canada             | CSA C22.2 No.107.1-01                                                        |           |
|                 |                    | CSA C22.2 No.223-M91 (Power Supplies With Extra-Low-Voltage Class 2 Outputs) |           |
| KC              | Korea              | K61347-1                                                                     |           |
|                 |                    | K61347-2-13                                                                  |           |
|                 |                    | K62384                                                                       |           |
| PSE             | Japan              | J61347-1                                                                     |           |
|                 |                    | J61347-2-13                                                                  |           |
| SAA             | Australia          | IEC 61347-2-13                                                               |           |
|                 |                    | AS/NZS 61347.1                                                               |           |

### 5.2 Electromagnetic Compatibility Standards

| EMC Certification | Country and region | Standards     | Accordant |
|-------------------|--------------------|---------------|-----------|
| CCC               | China              | GB 17743      |           |
|                   |                    | GB 17625.1    |           |
| FCC               | America            | FCC part 15   |           |
| CE                | Europe             | EN 55015      |           |
|                   |                    | IEC 61000-3-2 |           |
|                   |                    | IEC 61000-3-3 |           |
|                   |                    | IEC 61547     |           |
| KC                | Korea              | K61547        |           |
|                   |                    | K00015        |           |
| PSE               | Japan              | J55015        |           |

## 6 Details of Safety Specifications

### 6.1 Dielectric Strength

6.1.1 input to output : 3750Vac, 60s, current is less than 10mA;

6.1.2 input to PE:1600Vac, 60s, current is less than 10mA;

6.1.3 output to PE: 1600Vac, 60s, current is less than 10mA.



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**Note:** 25°C±10°C ambient temperature, I/P: L,N Line;O/P: Vo+, Vo-.

## 6.2 Grounding Resistance

Under 25°C±10°C ambient temperature, pass 25A current for 60s, the measured grounding resistance is less than 0.1Ω.

## 6.3 Leakage Current

Leakage Current is defined as the current flowing through the ground wire. Under 25°C±10°C ambient temperature and 230Vac/50Hz input, the leakage current shall be less than 0.75mA.

## 6.4 Insulation Resistance

Under 25°C±10°C ambient temperature and less than 70% relative humidity, apply 500V dc voltage to each port of Input to output, input to GND, output to GND and last 60s, the insulation resistance is at least 100MΩ.

## 6.5 Surge Immunity Test

Under 25°C±10°C ambient temperature, L line to N line is 5000V, L line to FG is 10000V, N line to FG is 10000V.

# 7 Environmental Specifications

## 7.1 Operated Temperature And Humidity

Temperature: -40°C to +70°C ( please reference Temperature vs Load Curve); Relative Humidity: 20% to 95%, non-condensing.

## 7.2 Storage Temperature And Humidity

Temperature: -40°C to +85°C; Relative Humidity: 20% to 95%, non-condensing.

## 7.3 Vibration

10 to 500HZ Sweep at constant acceleration of 1.0G (depth: 3.5mm ) for 1 Hour for each of the perpendicular axes X, Y, Z.

## 7.4 Degrees of Protection

IP67

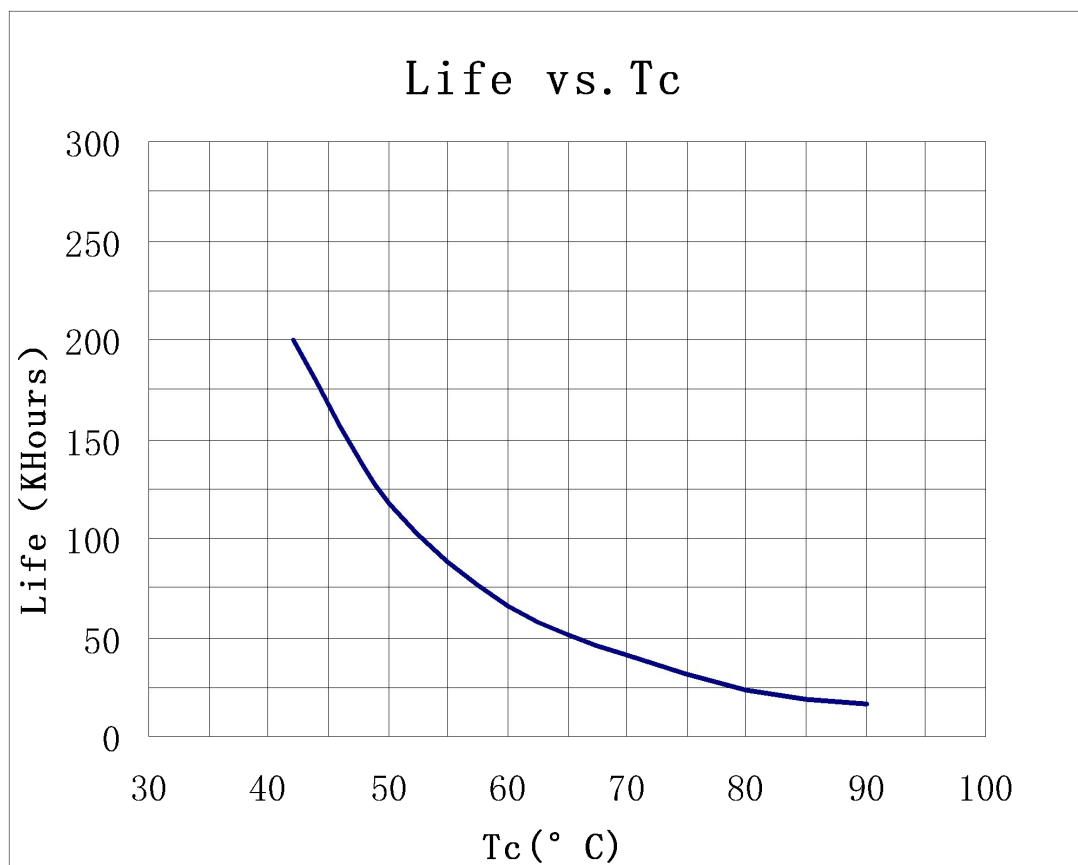
# 8 Reliability

## 8.1 Mean Time Between Failure (MTBF) Qualification (According as MIL-HDBK-217F Standards)

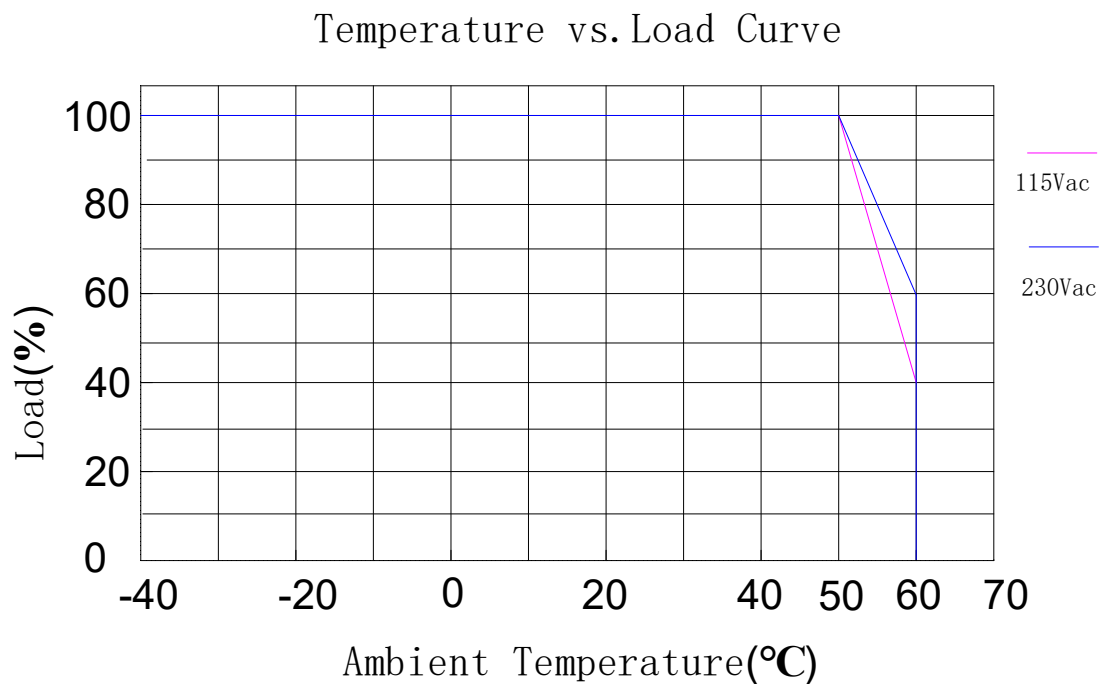
Mean time between failure is at least 200, 000 hours under 25°C ambient temperature, 230Vac input, and 80% load.

## 8.2 Life Time Qualification

The life time is at least 50, 000 hours, under 60°C case temperature, 230Vac input, and 100% load(reference Life vs.TC curve).

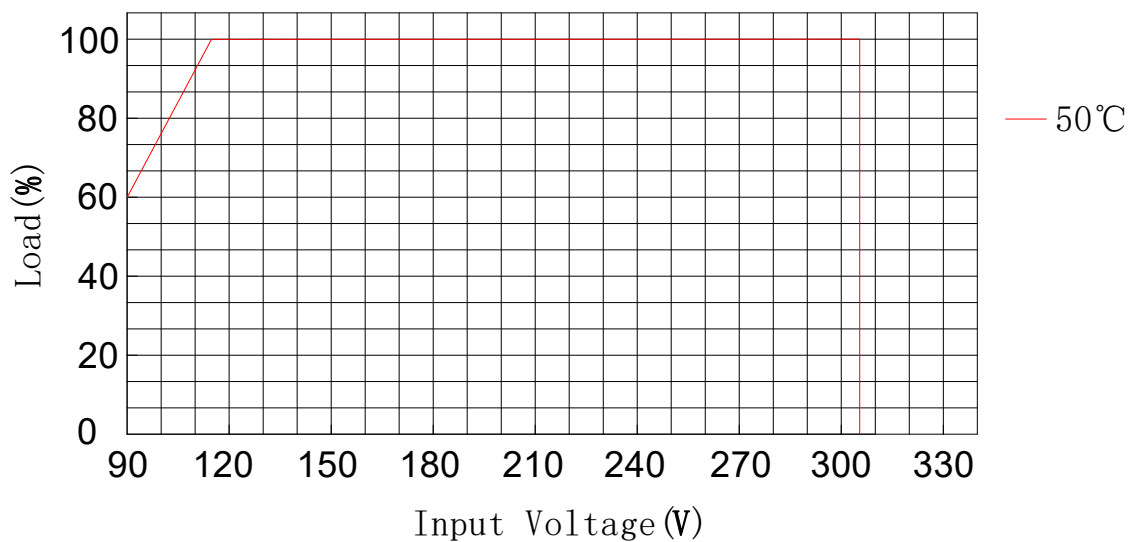


## 9 Temperature vs. Load Curve

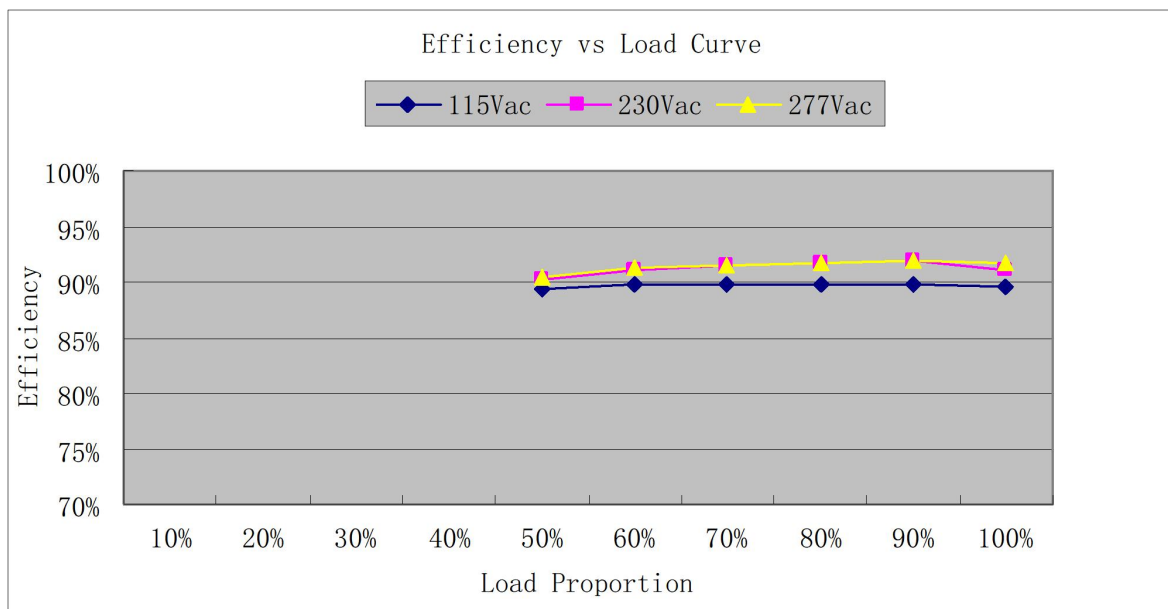


## 10 Input voltage vs. Load Curve

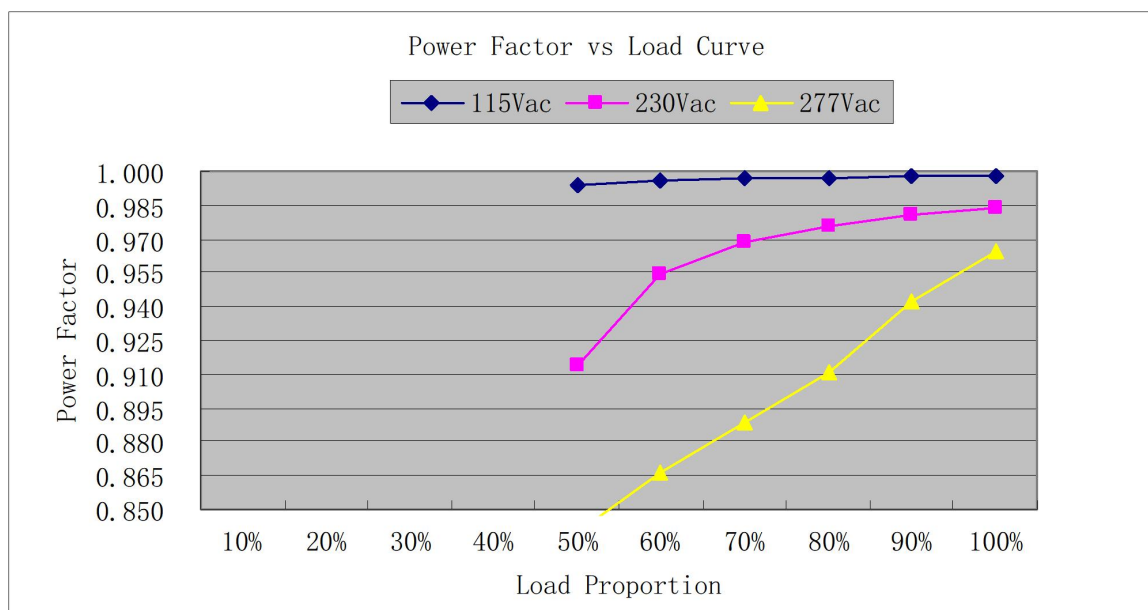
Input Voltage vs. Load Curve



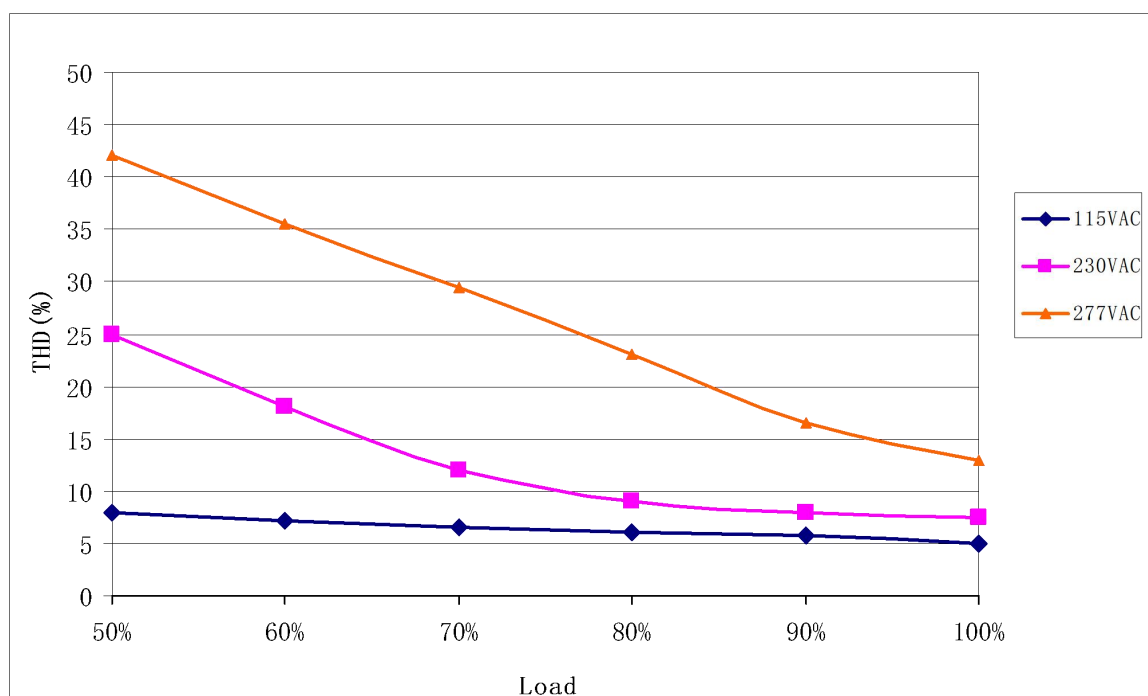
## 11 Efficiency vs. Load Curve



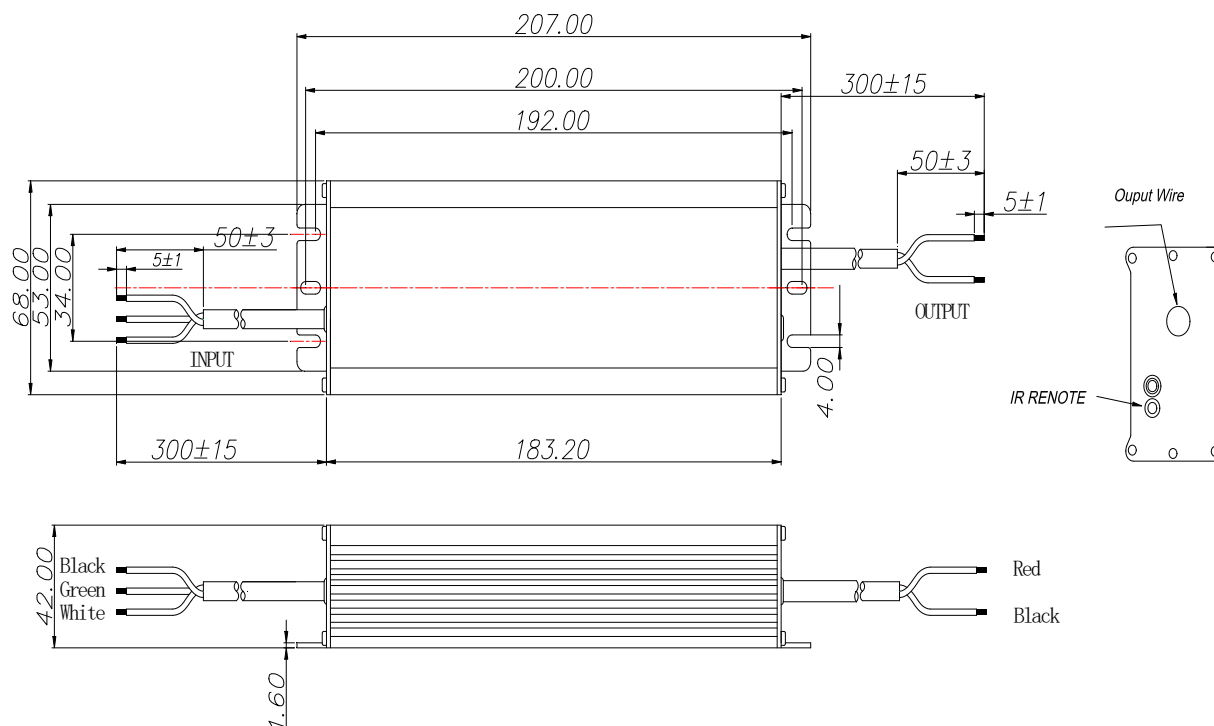
## 12 Power Factor vs. Load Curve



## 13 THDi Curve



## 14 Mechanical Outline Drawing



| Wire      | Specification    |
|-----------|------------------|
| AC Input  | 18AWG 3C L=300mm |
| DC Output | 16AWG 2C L=300mm |

**15 Label**



Bar code for 128 format  
Date of production need  
to be updated

## 16 Weight

900±50g