

## Description

The X6N series is outdoor programmable LED driver that operates in constant current and also provide multiple isolated dimming controls, Dim-to-Off. It also helps clients to improve the management of logistics and stock. The compact metal case and high efficiency enable the driver to operate with high reliability, it provides extreme durability with an IP67 rating and extends product lifetime. Overall protection is provided against lightning surge, output over voltage, short circuit and over temperature to ensure low failure rate.



## Product Features

- Universal input voltage: 90~305Vac;
- Isolate constant power design;
- 3-in-1 dimmable: 0~10Vdc / PWM/ Timer dimming;
- Off-line programmable with configurable operating windows;
- Programmable Constant Lumen Output (CLO);
- Output and Dimming Signal Isolating;
- High surge protection: DM 6KV, CM 10KV;
- Protections: SCP / OVP / OTP;
- IP67 design for indoor and outdoor applications;
- Suitable for dry / damp / wet locations;
- 5 years warranty.

## Application

Road and street lighting  
 Tunnel lighting  
 Area and flood lighting  
 High-bay lighting

## Models

| Model Number | Input Voltage Range (Vac) | Max Output Power (W) | Output Voltage Range (Vdc) | Full Power Output Current Range (A) | Default Current(A) | Eff. (Typ.) | PF(Typ.) | THD(Typ.) |
|--------------|---------------------------|----------------------|----------------------------|-------------------------------------|--------------------|-------------|----------|-----------|
| X6N-100M143  | 100~277                   | 100                  | 72-143                     | 0.7~1.05                            | 1.05               | 92%         | 0.97     | 5%        |

### NOTES:

[1]. M means 0-10V/PWM dimming.

[2]. All specifications are measured at 25°C ambient temperature, input voltage 230Vac, and the typical value tested by full load, if no specific note.

## Input Specifications

| Parameter                       | Min   | Typ.                   | Max    | Notes                              |
|---------------------------------|-------|------------------------|--------|------------------------------------|
| Input Voltage Range             | 90Vac | 120/220~240/<br>277Vac | 305Vac |                                    |
| Input Frequency AC              | 47Hz  | 50/60Hz                | 63Hz   |                                    |
| Max Input Current               | -     | -                      | 1.3A   | 120Vac & 100% load                 |
| Max Input Power                 | -     | -                      | 120W   | 120Vac & 100% load                 |
| Leakage Current                 | -     | -                      | 0.70mA | IEC 60598-1; 240Vac/60Hz           |
| Inrush Current                  | -     | -                      | 75A    | 240Vac, 100% load                  |
| Power Factor (PF)               | 0.96  | 0.98                   | -      | 120Vac, 50-60Hz, 70%-100% load     |
| Power Factor (PF)               | 0.93  | 0.95                   | -      | 230Vac, 50-60Hz, 70%-100% load     |
| Power Factor (PF)               | 0.91  | 0.93                   | -      | 277Vac, 50-60Hz, 70%-100% load     |
| Total Harmonic Distortion (THD) | -     | 5%                     | 10%    | 120-230Vac, 50-60Hz, 70%-100% load |
| Total Harmonic Distortion (THD) | -     | 10%                    | 20%    | 277Vac, 50-60Hz, 70%-100% load     |
| MCB(B16)                        | -     | 9                      | -      | 230Vac; 100%load                   |

## Output Specifications

| Parameter                           | Min    | Typ.   | Max    | Notes                                                                                      |
|-------------------------------------|--------|--------|--------|--------------------------------------------------------------------------------------------|
| Output Voltage Range                | 72Vdc  | -      | 143Vdc |                                                                                            |
| Open Circuit Voltage                | -      | 163Vdc | 170Vdc |                                                                                            |
| Output Current Range                | 0.105A | -      | 1.05A  | Adjustable Output Current with programmer                                                  |
| Full Power Current Range            | 0.70A  | -      | 1.05A  |                                                                                            |
| Current Accuracy                    | -5%    | -      | +5%    |                                                                                            |
| Total Output Current Ripple (pk-pk) | -      | 5%     | 10%    | 20MHz BW full load & LED load the LED load ripple is slightly different for different LEDs |
| Startup Overshoot Current           | -      | -      | 10%    |                                                                                            |
| Line Regulation                     | -3%    | -      | +3%    | 25°C±10°C ambient temperature, input changes from 120Vac to 277Vac                         |
| Load Regulation                     | -3%    | -      | +3%    | Load varies from 70% to 100% with 230Vac<br>Input at 25°C ±10°C ambient temperature        |
| Turn-on Delay Time                  | -      | -      | 60s    | 240Vac, 100% load, 25°C ±10°C ambient temperature                                          |

## General Specifications

| parameter                                 | Min                                            | Typ.           | Max   | Notes                                                                                                                                       |
|-------------------------------------------|------------------------------------------------|----------------|-------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Efficiency@120Vac<br>Io=1.05A<br>Io=0.70A | 87.0%<br>87.0%                                 | 89.0%<br>89.0% | -     | 100% load, 25°C±10°C ambient temperature                                                                                                    |
| Efficiency@230Vac<br>Io=1.05A<br>Io=0.70A | 90.0%<br>90.0%                                 | 92.0%<br>92.0% |       | 100% load, 25°C±10°C ambient temperature                                                                                                    |
| Efficiency@277Vac<br>Io=1.05A<br>Io=0.70A | 90.5%<br>90.5%                                 | 92.5%<br>92.5% |       | 100% load, 25°C±10°C ambient temperature                                                                                                    |
| Mean Time Between Failure                 | -                                              | 200Khours      | -     | 25°C±10°C ambient temperature, 230Vac, 80% load condition (MIL-HDBK-217/SR-332)                                                             |
| Lifetime                                  | -                                              | 100Khours      | -     | 230Vac & 100% load, Tc 75°C, reference lifetime vs. case temperature curve                                                                  |
| Operating Temperature Ta                  | -60°C                                          | -              | +50°C | 100~200Vac, Output Power vs. Ambient Temperature curve<br>Start up at -60°C is only applicable for input voltages between 176VAC and 305VAC |
| Operating Temperature Ta                  | -60°C                                          | -              | +60°C | 200~277Vac, Output Power vs. Ambient Temperature curve<br>Start up at -60°C is only applicable for input voltages between 176VAC and 305VAC |
| Operating Tc for Safety Tc_s              | -40°C                                          | -              | +90°C |                                                                                                                                             |
| Operating Tc for Warranty Tc_w            | -40°C                                          | -              | +75°C | 5-year warranty shell temperature, humidity: 10% to 95% RH                                                                                  |
| Storage Temperature Ta                    | -40°C                                          | -              | +85°C | Humidity: 5% to 100% RH                                                                                                                     |
| Altitude                                  | -60m                                           | -              | 4000m |                                                                                                                                             |
| Input Under voltage Protection            | 65Vac                                          | 75Vac          | 90Vac | Turn off the output or hiccup when the input voltage falls below protection voltage.                                                        |
| Over Temperature Protection Tc            | -                                              | 95°C           | -     | Decreases output current, returning to normal after over temperature is removed.                                                            |
| Short Circuit Protection                  | -                                              | -              | -     | Constant current mode. The output shall return to normal when the fault condition is removed.                                               |
| Dimensions (L*W*H)                        | 138*68*35mm                                    |                |       |                                                                                                                                             |
| Net Weight                                | 600±50g/PCS                                    |                |       |                                                                                                                                             |
| Package (L*W*H)                           | 466*282*172mm; 16PCS/Ctn, Gross Weight: 11.5Kg |                |       |                                                                                                                                             |

## Dimming

| Parameter                     | Min                  | Typ.  | Max                   | Notes                             |
|-------------------------------|----------------------|-------|-----------------------|-----------------------------------|
| Absolute Maximum Voltage      | -                    | 10V   | 15V                   | On the Vdim (+) Pin               |
| Source Current on Vdim (+)Pin | -                    | 200uA | 400uA                 |                                   |
| Dimming Range                 | 10% I <sub>max</sub> | -     | 100% I <sub>max</sub> |                                   |
| Suggest Dimming Input 0-10V   | 0V                   | -     | 10V                   |                                   |
| Turn-on Voltage               | 0.7V                 | -     | 1.0V                  |                                   |
| Turn-off Voltage              | 0.4V                 | -     | 0.7V                  |                                   |
| PWM in High Level             | 9.7V                 | -     | 10.3V                 |                                   |
| PWM in Low Level              | 0V                   | -     | 0.3V                  |                                   |
| PWM in Frequency Range        | 300Hz                | -     | 2KHz                  |                                   |
| PWM in Duty Cycle             | 1%                   | -     | 99%                   |                                   |
| Turn-on Duty Cycle            | 7%                   | -     | 10%                   |                                   |
| Turn-Off Duty Cycle           | 4%                   | -     | 7%                    |                                   |
| Timer dimming                 | -                    | -     | -                     | 3 types, which is set by software |
| Output lumen compensation     | -                    | -     | -                     | constant lumen output function    |

## Safety Specification

|                                      |      |         |      |                                                     |
|--------------------------------------|------|---------|------|-----------------------------------------------------|
| Dielectric Strength (Input-Output)   | -    | 3750Vac | -    | 60s, Current not exceeding 5mA                      |
| Dielectric Strength (Input-Ground)   | -    | 1554Vac | -    | 60s, Current not exceeding 5mA                      |
| Dielectric Strength (Output-Ground)  | -    | 1340Vac | -    | 60s, Current not exceeding 5mA                      |
| Dielectric Strength (Input-Dimming)  | -    | 3750Vac | -    | 60s, Current not exceeding 5mA                      |
| Dielectric Strength (Dimming-Ground) | -    | 500Vac  | -    | 60s, Current not exceeding 5mA                      |
| Grounding Resistance                 | -    | -       | 0.1Ω | 25℃±10℃ Ambient Temperature, pass 25A Current, 60s. |
| Insulation Resistance                | 10MΩ | -       | -    | Input-Output, Input-PE, Output-PE, 500Vdc/60s/25℃   |

## Safety Compliance

| Safety Category | Standards                                 | Approved | Notes |
|-----------------|-------------------------------------------|----------|-------|
| CCC             | GB/T 19510.1, GB/T 19510.213              | √        |       |
| CE              | EN61347-1, EN61347-2-13, EN62493          | √        |       |
| ENEC            | EN61347-1, EN61347-2-13, EN62384          | √        |       |
| CB              | IEC61347-1, IEC61347-2-13                 | √        |       |
| BIS             | IS 15885(PART 2/SEC 13)                   |          |       |
| UL              | UL 8750                                   |          |       |
| CUL             | CSA C22.2 No.250.13                       |          |       |
| KC              | K61347-1, K61347-2-13                     |          |       |
| PSE             | J61347-1, J61347-2-13                     |          |       |
| SAA             | AS 61347.2.13, AS/NZS 61347.1             |          |       |
| EAC             | ГОСТ Р МЭК 61347-1<br>ГОСТ IEC 61347-2-13 |          |       |

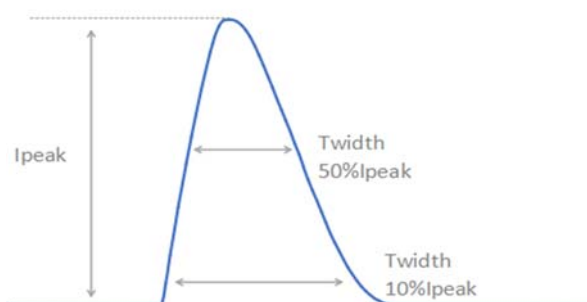
## EMC Compliance

| EMC Category         | Standards                                                        | Approved | Notes |
|----------------------|------------------------------------------------------------------|----------|-------|
| CCC                  | GB/T 17743, GB 17625.1                                           | √        |       |
| CE                   | EN 55015                                                         | √        |       |
| CE                   | EN 61000-3-2, EN 61000-3-3                                       | √        |       |
| CE                   | EN61000-4-2,3,4,5,6,11                                           | √        |       |
| CE                   | EN 61547                                                         | √        |       |
| KC                   | K61547                                                           |          |       |
| KC                   | K00015                                                           |          |       |
| PSE                  | J55015                                                           |          |       |
| FCC                  | FCC part 15                                                      |          |       |
| Surge Shock Immunity | ANSI/C82.77-5-2017                                               |          |       |
| Ringing Wave         |                                                                  |          |       |
| EAC                  | ГОСТ IEC 62493, СТБ EH 55015<br>ГОСТ IEC 61547                   |          |       |
| EAC                  | ГОСТ 30804.3.2 (IEC 61000-3-2)<br>ГОСТ 30804.3.3 (IEC 61000-3-3) |          |       |

## RoHS

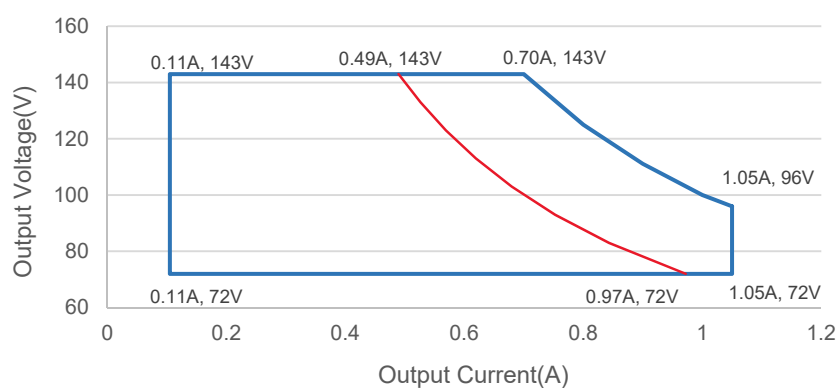
Our products comply with reference to RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

## Inrush Current



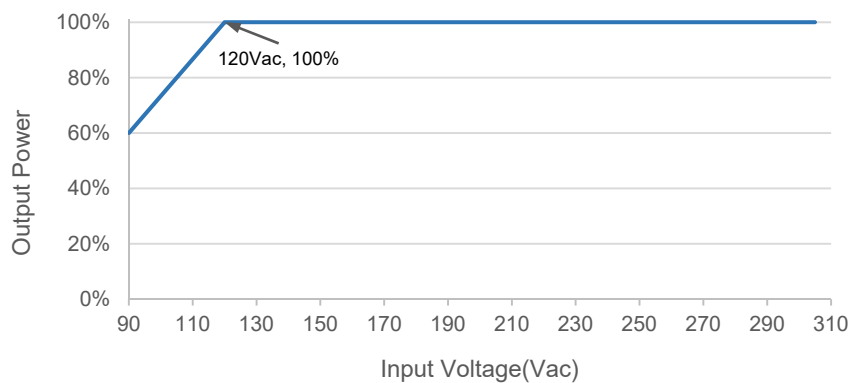
| Vin    | Ipeak | T(@10% of Ipeak) | T(@50% of Ipeak) |
|--------|-------|------------------|------------------|
| 240Vac | 40.4A | 710μs            | 410μs            |

## Output Voltage vs. Output Current

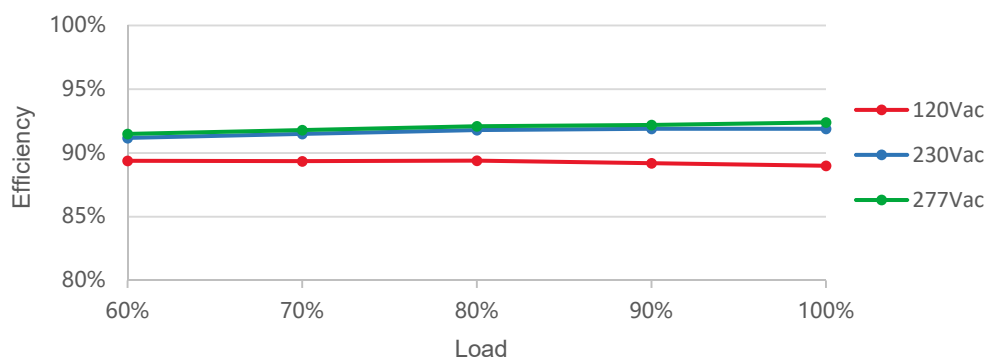


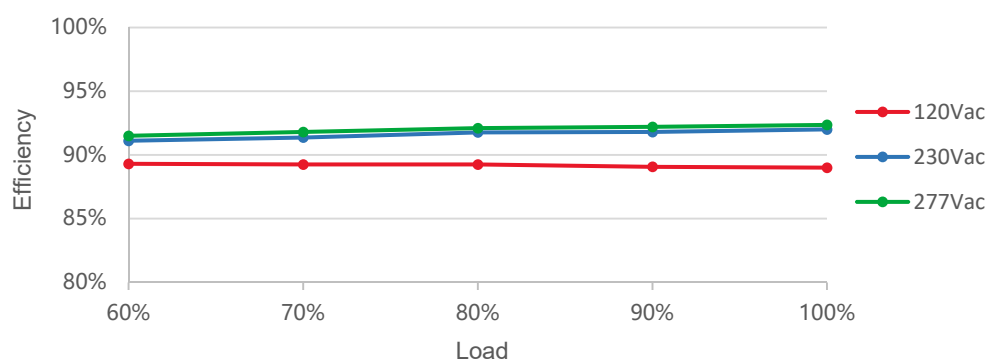
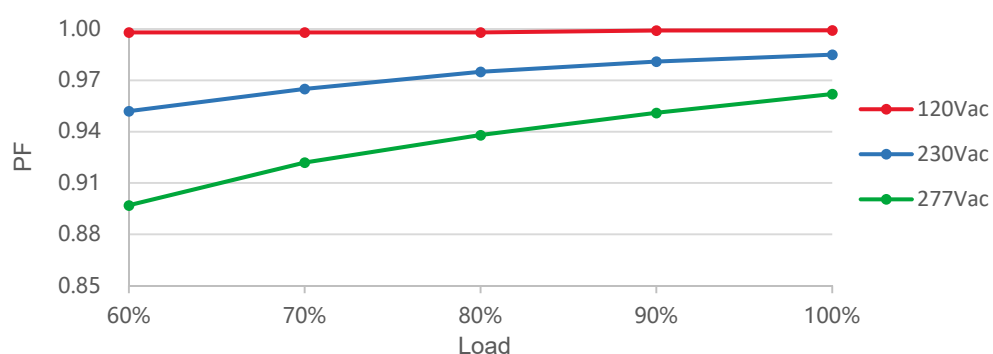
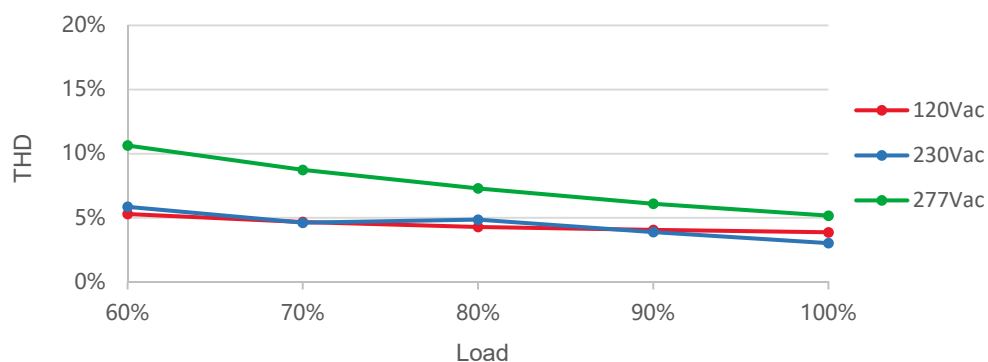
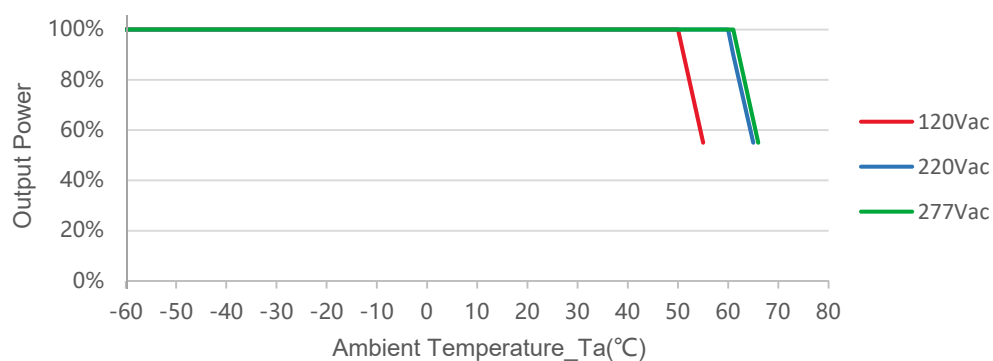
Red curve: good performance area

## Output Power vs. Input Voltage

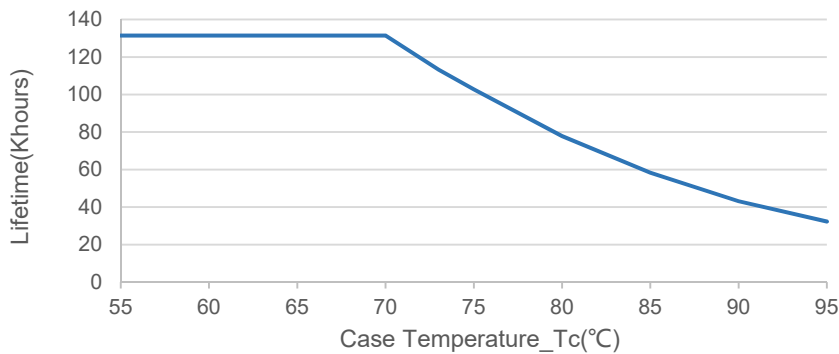


## Efficient vs. Load (Io=1.05A)

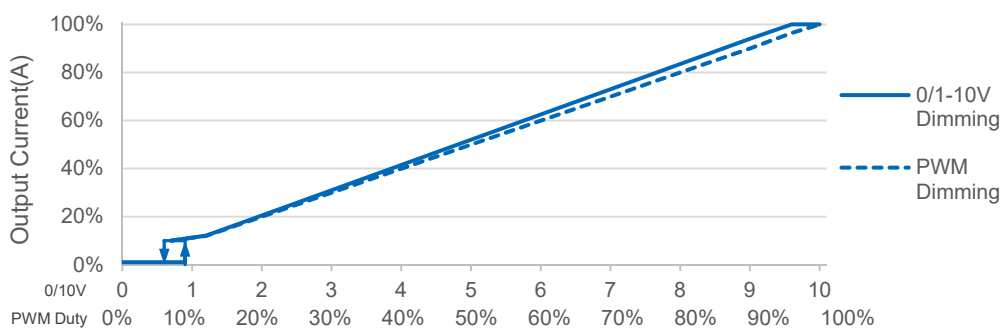


**Efficient vs. Load ( $I_o=0.70A$ )**

**PF vs. Load**

**THD vs. Load**

**Output Power vs. Ambient Temperature**


## Lifetime vs. Case Temperature



## 0-10V/PWM Dimming



Note: Afterglow may appear after switching off dimming due to the difference of lamp panel. Thus, lighting fixture grounding test is suggested. Dim to off model is realized by decreasing the output voltage, the power supply still has residual voltage when dim to off, so the start up voltage of the lamp should be higher than residual voltage.

## Off-line Programming

User-friendly connection of programming without necessary to power on device(suitable for X6, X6S, X6I, X6ESeries).

### Programming mode I



#### Visual Intelligent Programming

1. Set the output parameters through the control signal line 0-3.3V/0-5V/0-9V/0-10V optional.
2. Timer dimming. Set the timer control function, support up to 7 segments;
3. Set output CLO;
4. Read the recorded system parameters; Record the working time working temperature, and software version information of the LED driver.
5. Configure the driving parameters. After setting is completed, then click the configured parameters to complete programming.
6. Download it to the offline programmer.

### Programming mode 2



#### Instructions of one touch programmer:

1. Open the software interface and download the program to the offline programmer;
2. Connect the dimming wire with the programmer, press the programmer button, the programmer will give you a subtle reminder "( Beep )" to tell you the installation completed.

## Operating instructions

The Soft-start function is disabled by default. Select "EN\_SoftStart" and set the parameters to enable it (Default 60s or dimming 20%).

**U-I Curve**

Model: X6N-320M056

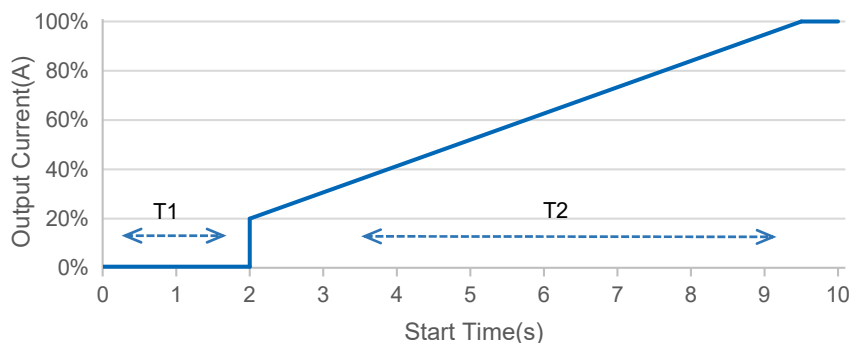
Set Current: I Max 7500 mA, I Set 5000 mA

Select Dimming Mode: ☒ Signal Dimming, ☐ Timer Dimming

Signal Dimming: ☒ Cut-off Setup, ☒ Set Min Current, ☒ OTP Setup, ☒ Set Dimmer Voltage, ☒ Set Reverse Dimming

SoftStart: ☒ EN\_SoftStart, Time 60 s, Out 20 %

The T2 Time can be set here



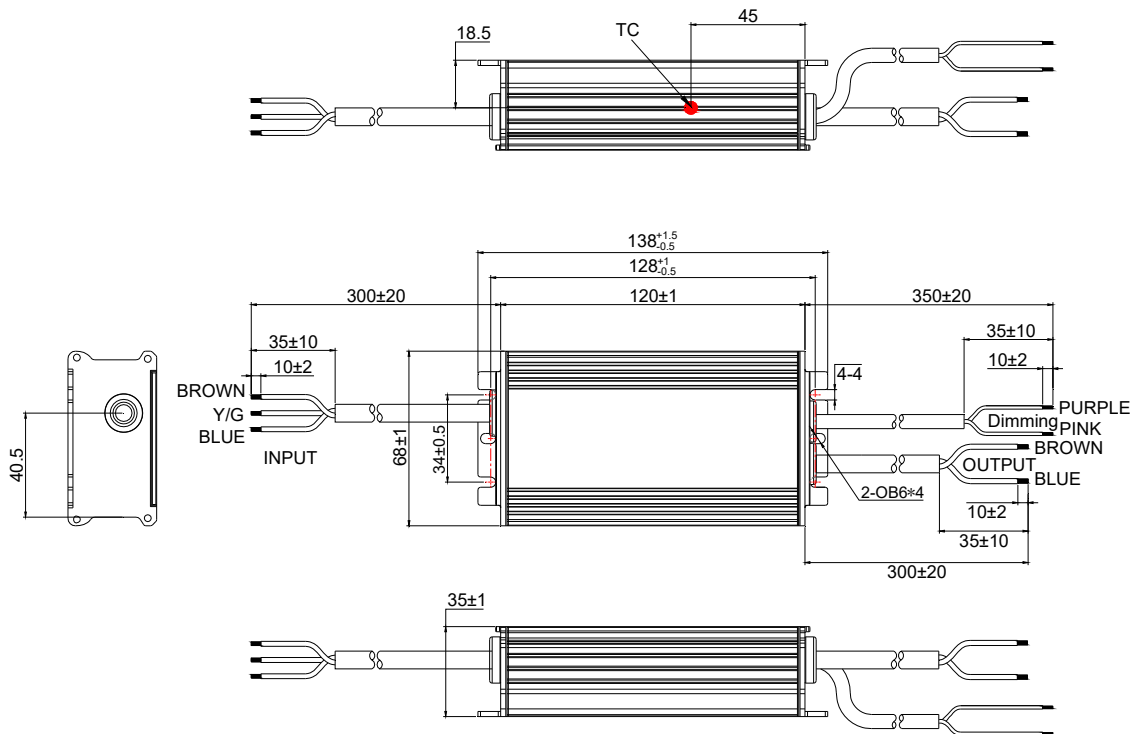
### Soft-start Curve

Note:

1. T1 is turn-on time of driver ( i.e., charging time of main capacitor within driver ), T1=2s max, cannot be set.
2. T2 is soft-start time of driver ( i.e., rise time of current output controlled by MCU ), T2 can be set 1~60s ( with a tolerance of  $\pm 0.5s$  ).



## Mechanical Outline



## Specification

|         |                                                  |            |
|---------|--------------------------------------------------|------------|
| Input   | CCC+VDE H05RN-F 3*1.0 mm <sup>2</sup> L=300±20mm | CCC/CE/SAA |
| Output  | CCC+VDE H05RN-F 2*1.0 mm <sup>2</sup> L=300±20mm | CCC/CE/SAA |
| Dimming | UL 2733 2*22AWG L=350±20mm                       | UL         |

## Label

|                                                                                                                      |                                                                                                               |                                                                                                                                                              |  |                                                                                                                                                          |  |
|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>INPUT</b><br>L (BROWN 棕)<br>G (Y/G 黄/绿)<br>N (BLUE 蓝)<br>中国制造<br>仅适用LED模块<br>MADE IN CHINA<br>For LED module only |                                                                                                               | <b>MOSO</b> <sup>®</sup> X6N-100M143 恒流型, 内置防雷管<br>LED DRIVER Constant current type<br>LED 控制装置 Integrated SPD<br>U <sub>out</sub> (最大电压): 170V <sub>~</sub> |  | <b>OUTPUT</b><br>(PURPLE 紫) DIM+<br>(PINK 粉) DIM-<br>(BROWN 棕) Vo+<br>(BLUE 蓝) Vo-                                                                       |  |
| INPUT<br>(输入)                                                                                                        | 100-277V~ 50/60Hz, 120W Max. 1.3A Max.<br>PF: (P <sub>out</sub> ≥72W)=0.85C-0.95                              |                                                                                                                                                              |  | 深圳茂硕电子科技有限公司/深圳市南山区西丽松白路1061号<br>SHENZHEN MOSO ELECTRONICS TECHNOLOGY CO., LTD<br>No.1061, Songbai Road, Xili Town, Nanshan District,<br>Shenzhen, CHINA |  |
| OUTPUT<br>(输出)                                                                                                       | 72-143V <sub>~</sub> , 0.105-1.05A Max. 100W<br>tc:90°C<br>ta:50°C Input:100-200V~<br>ta:60°C Input:200-277V~ |                                                                                                                                                              |  |                                                                                                                                                          |  |

Version

|     |               |            |
|-----|---------------|------------|
| A.1 | First release | 2026-06-24 |
|     |               |            |
|     |               |            |
|     |               |            |
|     |               |            |
|     |               |            |
|     |               |            |

## Specification for Approval

Product Name: 100W LED Driver

Product Model: X6N-100M143

Rev: A.1

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Web Site: <http://www.mosopower.com>

| Prepared By | Checked By | Approved By |
|-------------|------------|-------------|
|             |            |             |

## Specification for Approval

Product Name: 100W LED Driver

Product Model: X6N-100M143

Rev: A.1

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

Address: XiLi Songbai Road 1061, Nanshan District, Shenzhen City, Guangdong, China

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Web Site: <http://www.mosopower.com>

| Prepared By | Checked By | Approved By |
|-------------|------------|-------------|
|             |            |             |