

Description

The X6E series is outdoor programmable LED driver that operates in constant current with high PF value and full power input voltage range 176~305Vac model, the X6E series 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 enables 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;
- Full power work range: 176~305Vac;
- 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: 6KV line-line, 10KV line-earth;
- 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.) |
|--------------|---------------------------|----------------------|----------------------------|-------------------------------------|--------------------|-------------|----------|-----------|
| X6E-150M056 | 100-277 | 150 | 28-56 | 2.70~4.30 | 3.10 | 90% | 0.97 | 10% |

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 at full load, if no specific note.

Input Specifications

| Parameter | Min | Typ. | Max | Notes |
|---------------------------------|--------|------------|--------|---|
| Input Voltage Range | 90Vac | 220~240Vac | 305Vac | |
| Full Power Work Range | 176Vac | 220~240Vac | 277Vac | Refer to Output Power vs. Input Voltage curve |
| Input Frequency AC | 47Hz | 50/60Hz | 63Hz | |
| Max Input Current | - | - | 1.3A | |
| Max Input Power | - | - | 180W | |
| Leakage Current | - | - | 0.70mA | IEC 60598-1; 240Vac/60Hz |
| Inrush Current | - | - | 70A | 230Vac, 100% load |
| Power Factor (PF) | 0.93 | 0.95 | - | 220-240Vac, 50-60Hz, 70%-100% load |
| Total Harmonic Distortion (THD) | - | 10% | 15% | 220-240Vac, 50-60Hz, 70%-100% load |
| MCB(B16) | - | 6 | - | 240Vac; 100%load |

Output Specifications

| Parameter | Min | Typ. | Max | Notes |
|-------------------------------------|---------------|------|---------------|--|
| Output Voltage Range | 28Vdc | - | 56Vdc | The full power cannot be lower than 35Vdc |
| Open Circuit Voltage | - | - | 80Vdc | |
| Output Current Range | 0.43A | - | 4.30A | Adjustable Output Current with programmer |
| Full Power Current Range | 4.30A | - | 4.30A | |
| Current Accuracy | -5% I_{set} | - | +5% I_{set} | I_{set} is set to the full power range |
| 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% | 220-240Vac full load condition, LED load |
| Line Regulation | -1% | - | +1% | 25°C±10°C ambient temperature, input changes from 200Vac to 264Vac |
| Load Regulation | -3% | - | +3% | Load varies from 70% to 100% with 230Vac Input at 25°C±10°C ambient temperature |
| Turn-on Delay Time | - | - | 1.0s | 230Vac, 100% load |

General Specifications

| parameter | Min | Typ. | Max | Notes |
|---|--|------------|-------|---|
| Efficiency@230Vac Io=2.70A Io=4.30A | 88% 88% | 90% 90% | - | 100% load, 25°C ambient temperature |
| Mean Time Between Failure | - | 200Khours | - | 25°C±10°C ambient temperature, 230Vac, 80% load condition (MIL-HDBK-217/SR-332) |
| Lifetime | - | 50Khours | - | 230Vac & 100% load, Tc 75°C, refer to lifetime vs. case temperature curve |
| Operating Temperature Ta | -40°C | - | +55°C | Output Power vs. Ambient Temperature curve |
| 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 | 55Vac | 65Vac | 75Vac | Turn off the output or hiccup when the input voltage falls below protection voltage. |
| Over Temperature Protection Tc | - | 98°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) | 171*68*37mm | | | |
| Net Weight | 790±100g/PCS | | | |
| Package (L*W*H) | 421*322*172mm; 14PCS/Ctn, Gross Weight: 13Kg | | | For reference only |

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 _{set} | - | 100% I _{set} | I _{set} is set to the full power range |
| Suggest Dimming Input 0-10V | 0V | - | 10V | |
| Turn-on Voltage | 0.9V | - | 1.1V | |
| Turn-off Voltage | 0.7V | - | 0.9V | Afterglow may appear after switching off. It is necessary to conduct grounding test with lighting fixture. |
| 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 | 9% | - | 15% | |
| Turn-Off Duty Cycle | 7% | - | 9% | Afterglow may appear after switching off. It is necessary to conduct grounding test with lighting fixture. |
| Timer dimming | - | - | - | 3 types, which is set by software |
| Output lumen compensation | - | - | - | Constant lumen output function |

Safety Specifications

| Parameter | Min | Typ. | Max | Notes |
|--------------------------------------|------|---------|------|---|
| Dielectric Strength (Input-Output) | - | 3750Vac | - | 60S, Current not exceeding 5mA |
| Dielectric Strength (Input-Ground) | - | 1875Vac | - | 60S, Current not exceeding 5mA |
| Dielectric Strength (Output-Ground) | - | 500Vac | - | 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 | GB19510.1,GB19510.14 | √ | |
| 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/NZS IEC 61347.2.13 | | |
| SAA | AS/NZS 61347.1 | | |

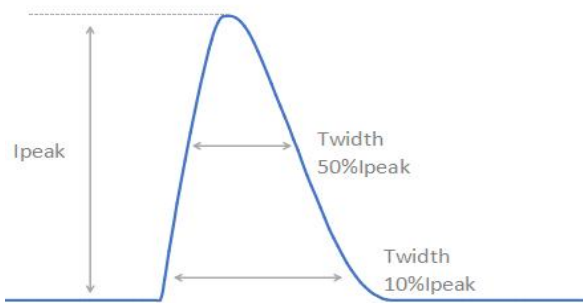
EMC Compliance

| 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 | | | |

RoHS

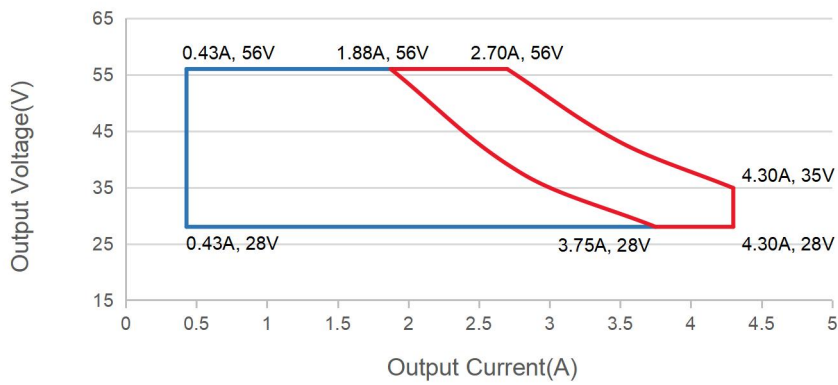
Our products comply with RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Inrush Current



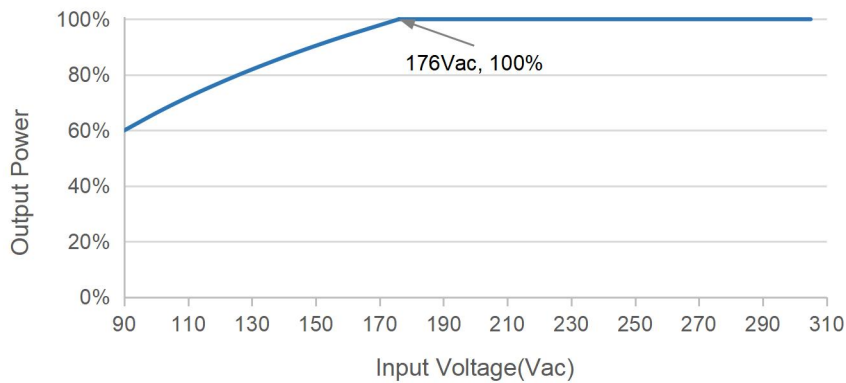
| V_{in} | I_{peak} | $T(@10\% \text{ of } I_{peak})$ | $T(@50\% \text{ of } I_{peak})$ |
|----------|------------|---------------------------------|---------------------------------|
| 230Vac | 66.5A | 528 μ s | 216 μ s |

Output Voltage vs. Output Current

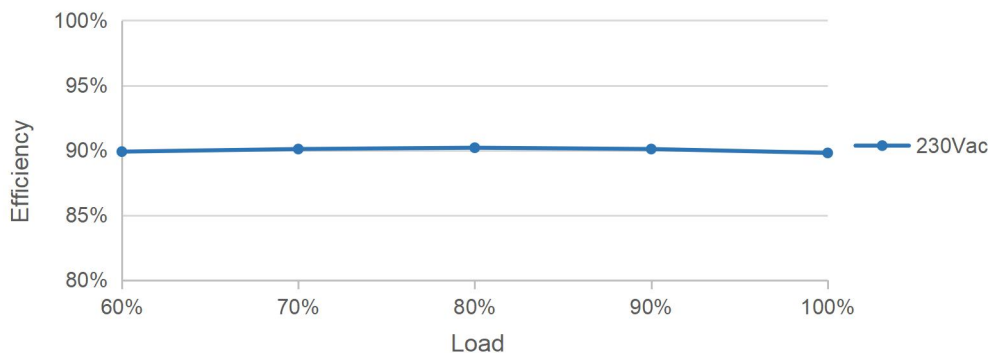


Red curve: good performance area

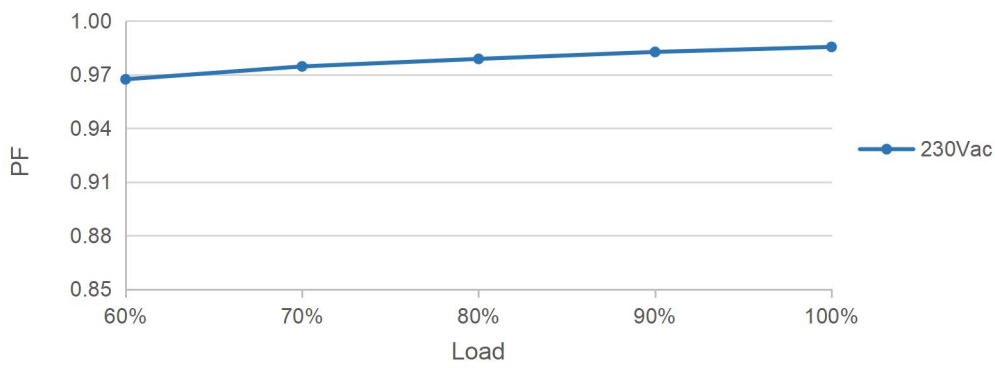
Output Power vs. Input Voltage



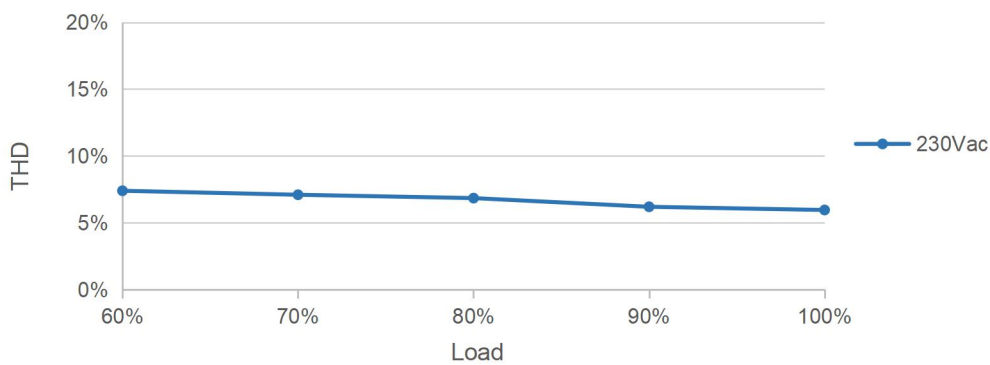
Efficiency vs. Load



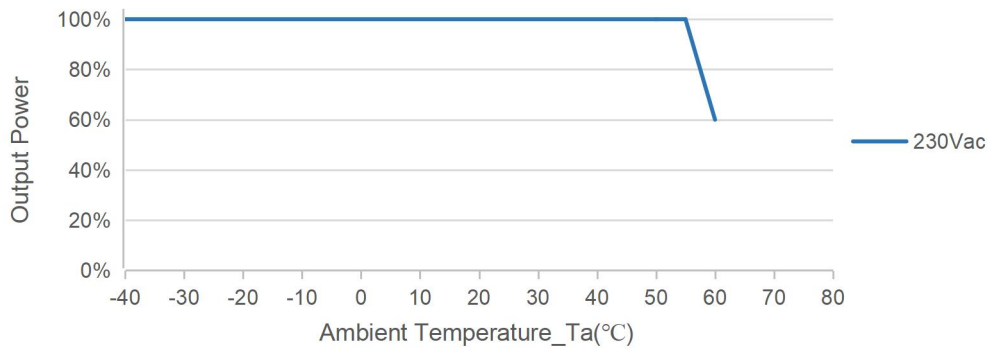
PF vs. Load



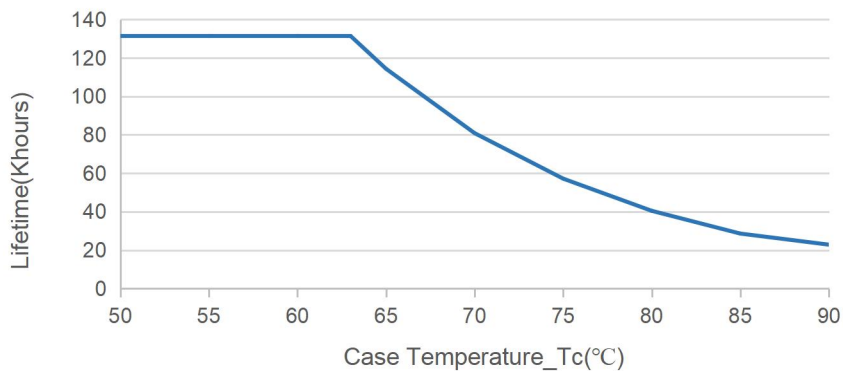
THD vs. Load



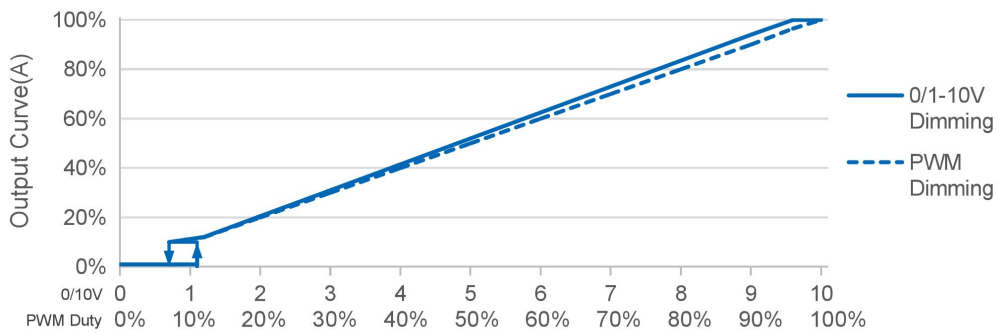
Output Power vs. Ambient Temperature



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.

Off-line Programming

User-friendly connection of programming without necessary to power on device(suitable for X6, X6S, X6I,X6E Series).

Programming mode 1



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.

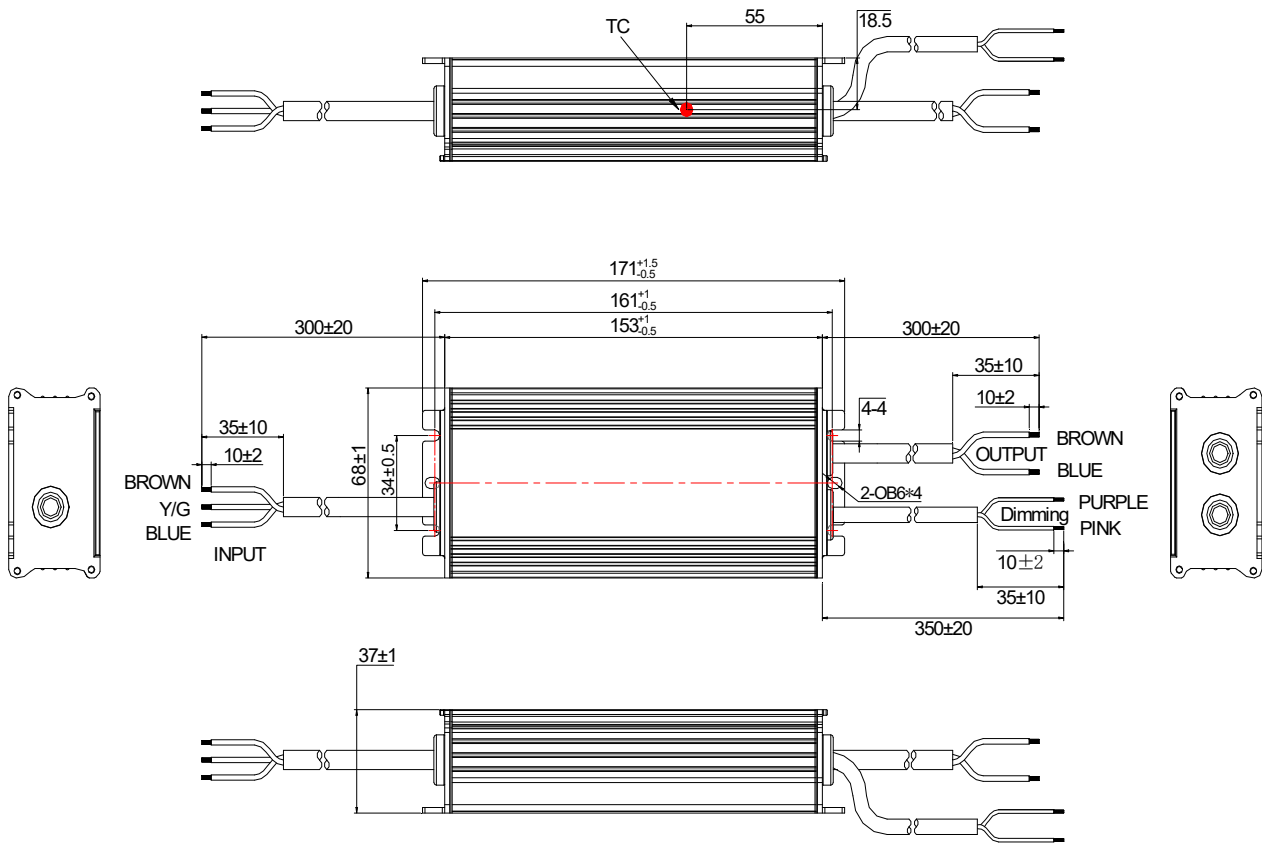
Programming mode 2



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.

Mechanical Outline



Specification

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

Label

| | | | |
|--|--|---|--|
| <p>MOSO[®] X6E-150M056 LED DRIVER Constant current type LED 控制装置 恒流型 内置防雷管</p> | | <p>CCC CE 110 IP67 RoHS</p> | <p>OUTPUT</p> |
| <p>INPUT</p> <p>L (BROWN 棕)</p> <p>G (Y/G 黄/绿)</p> <p>N (BLUE 蓝)</p> | <p>Uout (最大电压): 80V</p> <p>INPUT (输入) 100-240V/277V ~ 50/60Hz, 180W Max, 1.3A Max, PF: 0.95 100-240V ~ For CCC Certification range CCC认证范围 100-277V ~ For EU Certification range 欧盟认证范围</p> <p>OUTPUT (输出) 28-56V ~, 0.43-4.30A Max, 150W</p> <p>Ic: 90°C 105W Max, 0.43-3.0A (Input: 100-176V ~) Ia: 55°C 150W Max, 0.43-4.30A (Input: 176-240/277V ~)</p> <p>中国制造 仅适用LED模块 MADE IN CHINA For LED module only</p> | <p>SELV</p> <p>深圳茂硕电子科技有限公司 SHENZHEN MOSO ELECTRONICS TECHNOLOGY CO., LTD No.1061, Songbai Road, Xili Town, Nanshan District, Shenzhen, CHINA</p> | <p>(BROWN 棕) Vo +</p> <p>(BLUE 蓝) Vo -</p> <p>(PURPLE 紫) DIM +</p> <p>(PINK 粉) DIM -</p> |

Note:

Nameplate is laser engraved.

Version

| | | |
|-----|---------------|------------|
| A.2 | First release | 2023-02-21 |
| B.2 | First release | 2023-03-17 |
| C.2 | ERL202304046 | 2023-04-15 |
| D.2 | ECL202310020 | 2023-11-18 |
| | | |
| | | |

Specification for Approval

Product Name: 150W LED Driver

Product Model: X6E-150M056

Rev: D.2

Address: XiLiSongbai Road 1061, Nanshan District, Shenzhen City, Guangdong, China

Tel: 0755-27657000

FAX: 755-27657908

E-mail: info@mosopower.com

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

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

Specification for Approval

Product Name: 150W LED Driver

Product Model: X6E-150M056

Rev: D.2

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

Address:XiLiSongbai Road 1061, Nanshan District, Shenzhen City, Guangdong, China

Tel: 0755-27657000

FAX: 755-27657908

E-mail:info@mosopower.com

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

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