

## 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 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
- 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-200M286	100~277	200	156-286	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	220~240Vac	305Vac	
Full Power Work Range	176Vac	220~240Vac	277Vac	Reference Output Power vs. Input Voltage curve
Input Frequency AC	47Hz	50/60Hz	63Hz	
Max Input Current	-	-	1.6A	176Vac & 100% load
Max Input Power	-	-	240W	176Vac & 100% load
Leakage Current	-	-	0.70mA	IEC 60598-1;240Vac/60Hz
Inrush Current	-	-	75A	240Vac, 100% load
Power Factor (PF)	0.93	0.95	-	220-240Vac, 50-60Hz, 70%-100% load
Total Harmonic Distortion (THD)	-	5%	10%	220-240Vac, 50-60Hz, 70%-100% load
MCB(B16)	-	5	-	220Vac; 100%load

## Output Specifications

Parameter	Min	Typ.	Max	Notes
Output Voltage Range	156Vdc	-	286Vdc	The full power cannot be lower than 191Vdc
Open Circuit Voltage	-	-	310Vdc	
Output Current Range	0.105A	-	1.05A	Adjustable Output Current with programmer
Full Power Current Range	0.70A	-	1.05A	
Current Accuracy	-5% <sub>I<sub>set</sub></sub>	-	+5% <sub>I<sub>set</sub></sub>	I <sub>set</sub> 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	-	5%	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	240Vac, 100% load

## General Specifications

parameter	Min	Typ.	Max	Notes
Efficiency@230Vac Io=0.70A Io=1.05A	92% 91%	93% 92%	-	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, reference 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	-	95°C	-	Decreases output current, returning to normal after over temperature is removed.
Short Circuit Protection	-	-	-	Hiccup mode. The output shall return to normal when the fault condition is removed.
Dimensions (L*W*H)	173.6*68*39mm			
Net Weight	810±100g/PCS			
Package(L*W*H)	500*310*160mm; 15PCS/Ctn, Gross Weight: 15Kg			

## 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>set</sub>	-	100% I <sub>set</sub>	I <sub>set</sub> is set to the full power range
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)	-	1620Vac	-	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°C±10°C Ambient Temperature, pass 25A Current, 60s.
Insulation Resistance	10MΩ	-	-	Input-Output, Input-PE, Output-PE, 500Vdc/60S/25°C

## 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 61347.2.13, AS/NZS 61347.1	√	
EAC	ГОСТ Р МЭК 61347-1 ГОСТ IEC 61347-2-13	√	

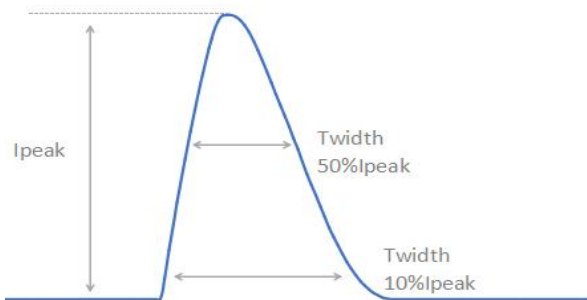
## EMC Compliance

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 ГОСТ IEC 61547	√	
EAC	ГОСТ 30804.3.2 (IEC 61000-3-2) ГОСТ 30804.3.3 (IEC 61000-3-3)	√	

## RoHS

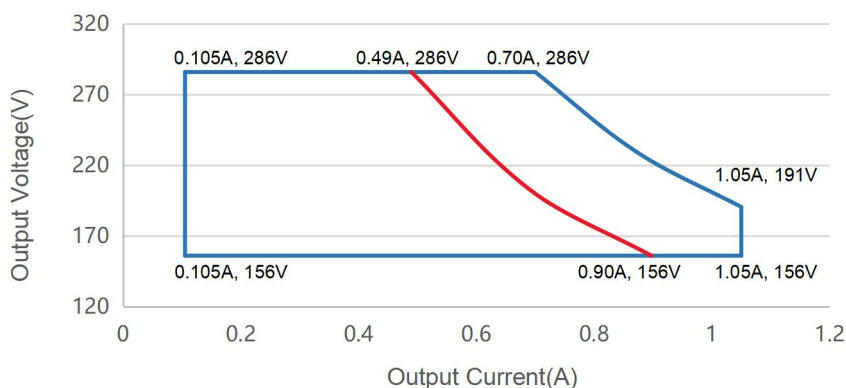
Our products comply with reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU.

**Inrush Current**



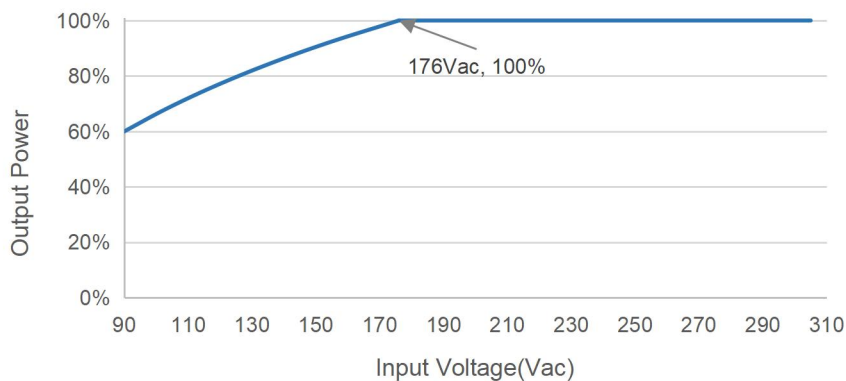
$V_{in}$	$I_{peak}$	$T(@10\% \text{ of } I_{peak})$	$T(@50\% \text{ of } I_{peak})$
220Vac	61A	616uS	380uS

**Output Voltage vs. Output Current**

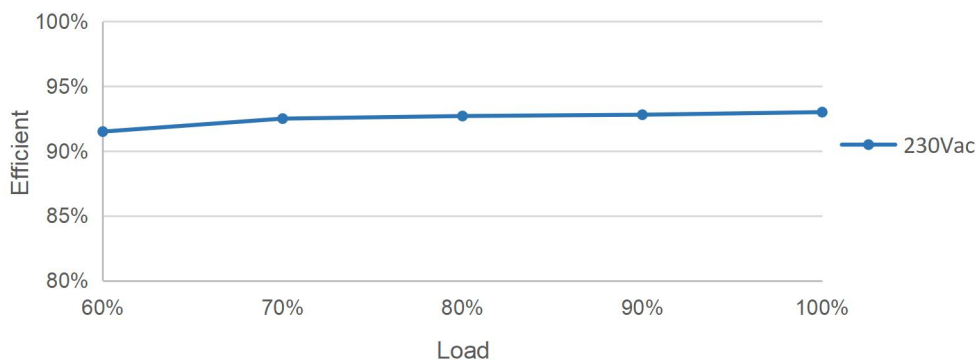


Red curve: good performance area

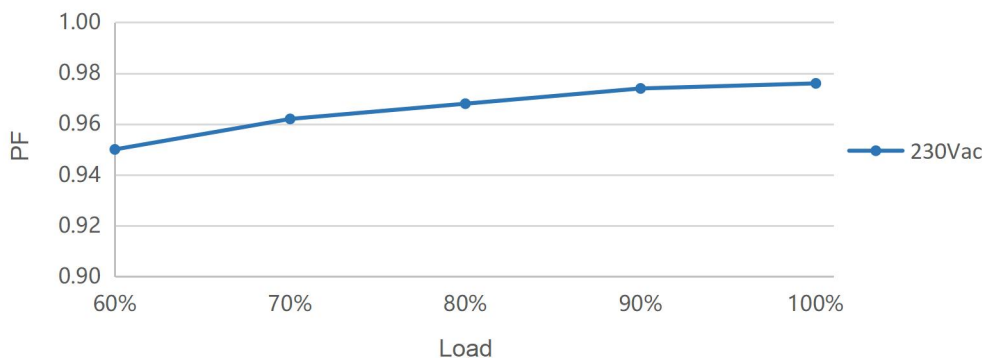
**Output Power vs. Input Voltage**



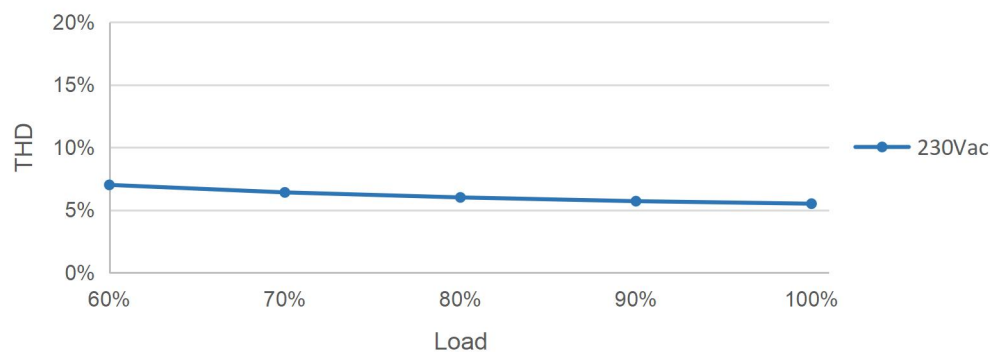
**Efficient vs. Load**



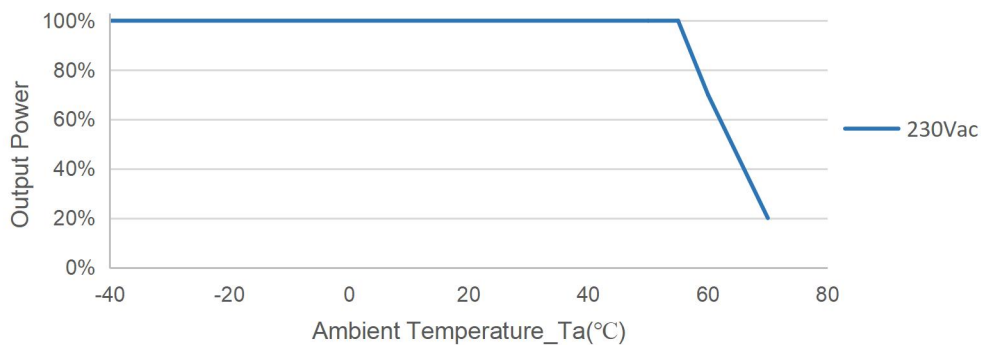
**PF vs. Load**



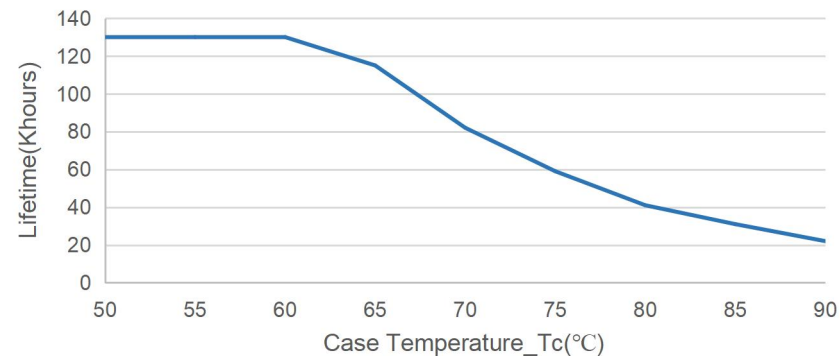
**THD vs. Load**



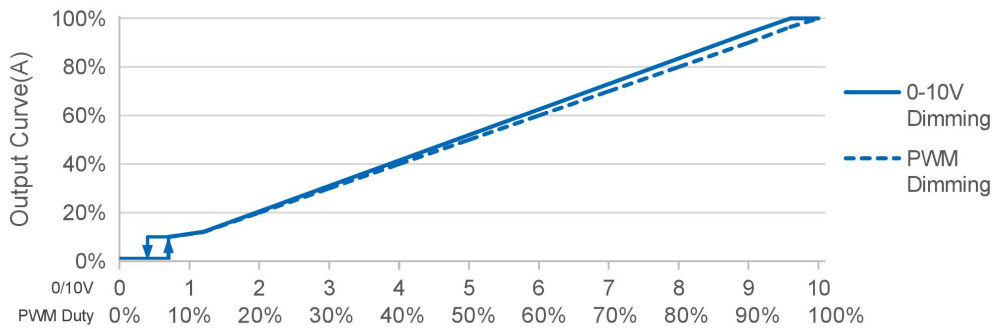
**Output Power vs. Ambient Temperature**



**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, XCP, 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.

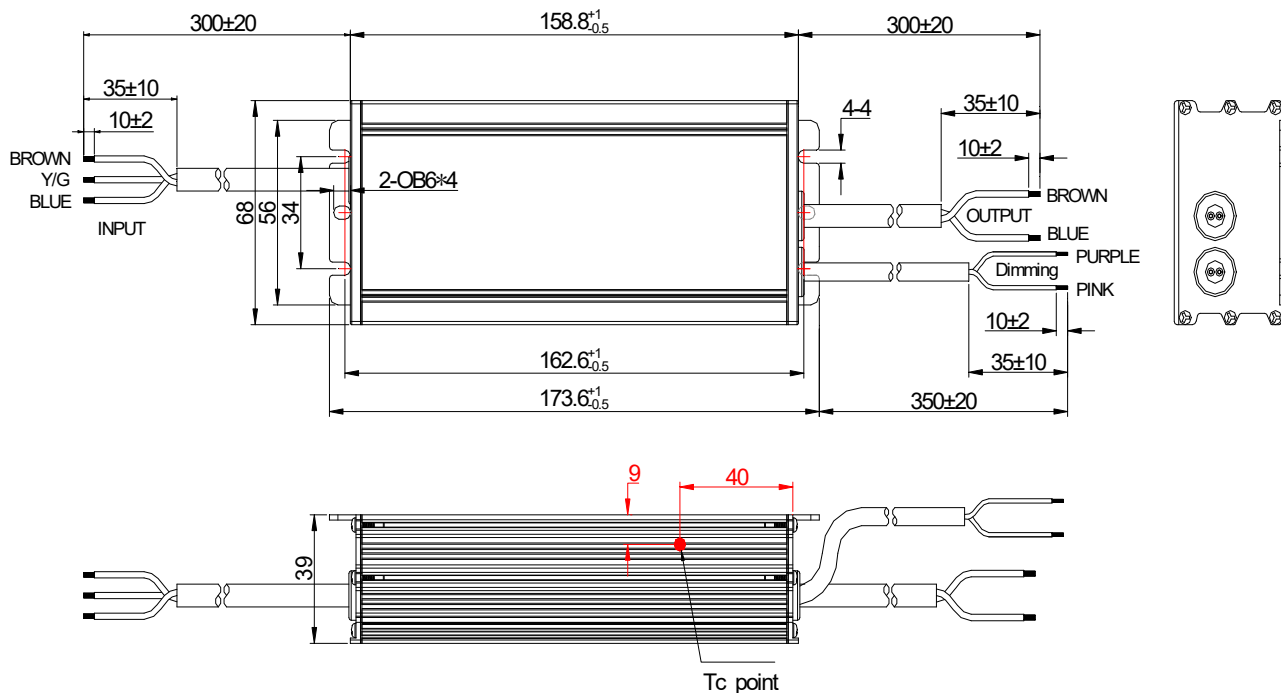
Programming mode 2



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.

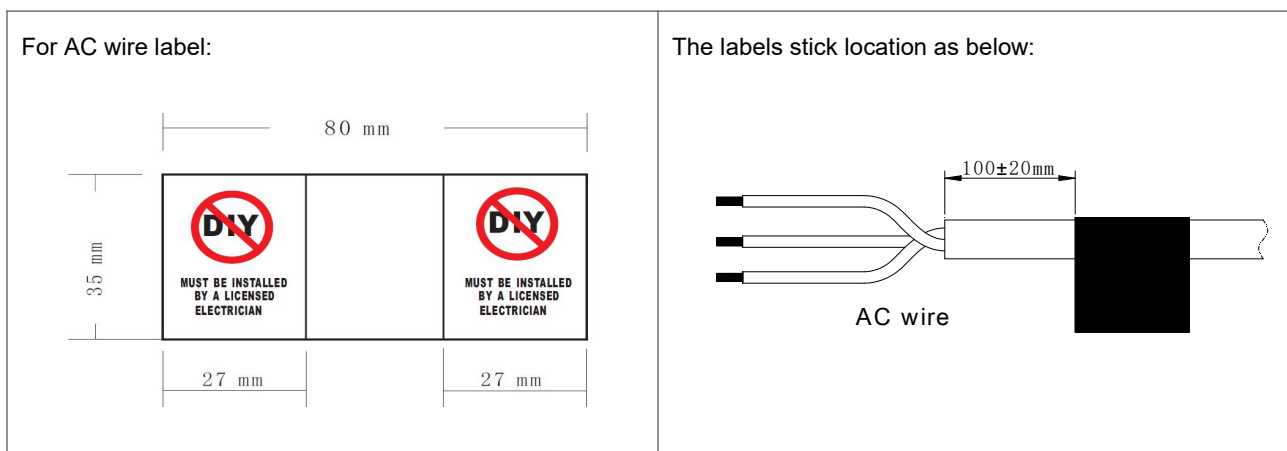
**Mechanical Outline**



**Specification**









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

**AC wire labels**





Label

<b>INPUT</b> L (BROWN 棕) G (Y/G 黄/绿)  N (BLUE 蓝)		<b>MOSO</b> <sup>®</sup> X6E-200M286 LED DRIVER Constant current type LED 控制装置 恒流型 内置防窜管 Uout(最大电压):310V ~~~		  	<b>OUTPUT</b> (BROWN 棕) Vo + (BLUE 蓝) Vo - (PURPLE 紫) DIM + (PINK 粉) DIM - EESS-230770-0				
		<table border="1"> <tr> <td>INPUT 输入</td> <td>100-240V/277V~ 50/60Hz, 240W Max. 1.6A Max. PF: (Pout≥100W) = 0.85C-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</td> </tr> <tr> <td>OUTPUT 输出</td> <td>156-286V ~~, 0.105-1.05A Max. 200W</td> </tr> <tr> <td>t<sub>c</sub>:90°C</td> <td>140W Max. 0.105-0.49A (Input: 100-176V ~)</td> </tr> <tr> <td>t<sub>a</sub>:55°C</td> <td>200W Max. 0.105-1.05A (Input: 176-240/277V ~)</td> </tr> </table>	INPUT 输入			100-240V/277V~ 50/60Hz, 240W Max. 1.6A Max. PF: (Pout≥100W) = 0.85C-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	OUTPUT 输出	156-286V ~~, 0.105-1.05A Max. 200W	t <sub>c</sub> :90°C
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t <sub>c</sub> :90°C	140W Max. 0.105-0.49A (Input: 100-176V ~)								
t <sub>a</sub> :55°C	200W Max. 0.105-1.05A (Input: 176-240/277V ~)								
中国制造 仅适用LED模块 MADE IN CHINA For LED module only		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		   					

**Version**

A.1	First release	2023-10-10

## Specification for Approval

Product Name: 200W LED Driver

Product Model: X6E-200M286

Rev: A.1

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

Tel: 0755-27657000

FAX: 755-27657908

E-mail: [info@mosopower.com](mailto:info@mosopower.com)

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

Prepared By	Checked By	Approved By

## Specification for Approval

Product Name: 200W LED Driver

Product Model: X6E-200M286

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

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Prepared By	Checked By	Approved By