Description

The X6E series is outdoor programmable LED driver that operates in constant current with high PF value and full power input voltage range 90~305Vac 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;
- 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: output SCP /OVP / OTP;
- IP67 design for indoor and outdoor applications;
- Suitable for dry / damp / wet locations;
- 5 years warranty;

Application

Road and street lighting,
Industrial 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.)	Dimensions(mm)
X6E-050M056-G	90~305	50	28-56	0.9~1.50	0.70	88%	0.97	5%	118*65*31.5

NOTES:

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

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

[3]. There are two versions with and without TD.

Input Specifications

Parameter	Min	Typ.	Max	Notes
Input Voltage Range	90Vac	220~240Vac	305Vac	
Rated voltage range	100Vac		277Vac	
Input Frequency AC	47Hz	50/60Hz	63Hz	
Max Input Current	-	-	0.62A	100Vac＆100% load
Max Input Power	-	-	60W	100Vac＆100% load
Leakage Current	-	-	0.70mA	IEC 60598-1;240Vac/60Hz
Inrush Current	-	-	50A	230Vac，100% load
Power Factor (PF)	0.94	0.97	-	220-240Vac, 50Hz, 70%-100% Load
	0.9	-	-	100-240Vac, 50Hz, 70%-100% Load
Total Harmonic Distortion (THD)	-	5%	10%	220-240Vac，50Hz, 70%-100% load
	-	-	20%	100-277Vac, 50Hz, 70%-100% Load
MCB(B16)	-	9	-	230Vac；100%load

Output Specifications

Parameter	Min	Typ.	Max	Notes
Output Voltage Range	28Vdc	-	56Vdc	
Open Circuit Voltage	-	-	80Vdc	
Output Current Range	0.15		1.5	Adjustable Output Current with programmer
Full Power Current Range	0.9		1.5	
Efficiency @120Vac I=0.9A I=1.5A	 86% 84%	 88% 85.5%		100% load,
Efficiency @230Vac I=0.9A I=1.5A	 87% 85%	 89% 87%		100% load,
Efficiency @277Vac I=0.9A I=1.5A	 87% 84.5%	 88.5% 86.5%		100% load,
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%	Full load
Line Regulation	-5%	-	+5%	Full load
Load Regulation	-5%	-	+5%	
Turn-on Delay Time	-	-	1.5s	230Vac,100% load

General Specifications

parameter	Min	Typ.	Max	Notes
Mean Time Between Failure	-	200Khours	-	25℃±10℃ambient temperature，230Vac，80% load condition (MIL-HDBK-217/SR-332)
Lifetime	-	50Khours	-	230Vac＆100% load，Tc 75℃，reference lifetime vs. case temperature curve
Operating Temperature Ta	-40℃	-	+55℃	Output Power vs. Ambient Temperature curve
Operating Tc for Safety Tc_s	-40℃	-	+90℃	
Operating Tc for Warranty Tc_w	-40℃	-	+75℃	5-year warranty shell temperature,humidity:10% to 95% RH
Storage Temperature Ta	-40℃	-	+85℃	Humidity:5% to 100% RH
Altitude	-60m	-	4000m	
Over Temperature Protection_Tc	-	90℃	-	Turn off the output current, and will not return to normal after over temperature condition is removed.
Short Circuit Protection	-	-	-	Hiccup mode. The output shall return to normal when the fault condition is removed.
Dimensions (L*W*H)	118*65*31.5mm			
Net Weight	470±50g/PCS			
Package(L*W*H)	L466xW282xH172mm; 16PCS/Ctn, Gross Weight: 8.18Kg			

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	0.7V	-	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 are set by software
Output lumen compensation	-	-	-	Constant lumen output function

Safety Specification

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）	-	1500Vac	-	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. （ pass 30A Current,60S：for UL）
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		

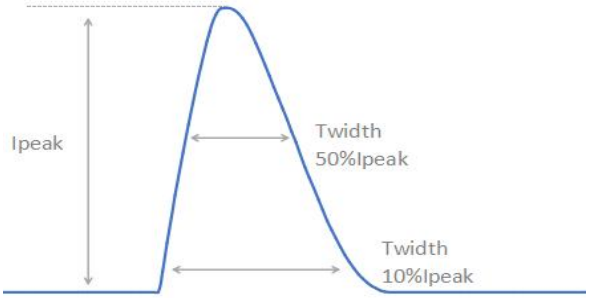
EMC Compliance

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	√	for UL series （X6E-G series）
Surge Shock Immunity	ANSI/C82.77-5-2017		
Ringing Wave			

RoHS

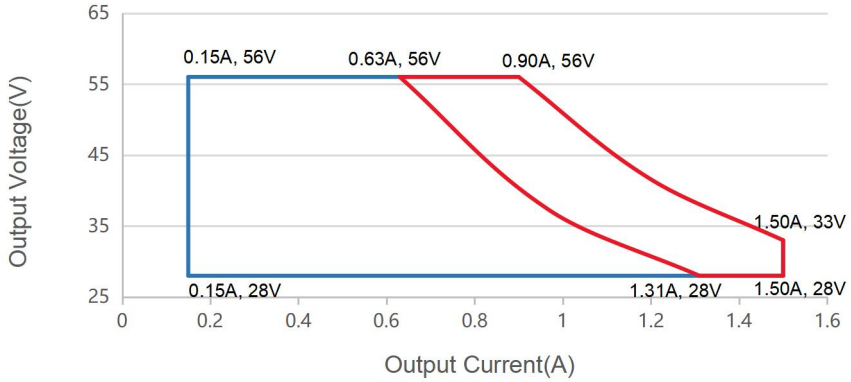
Our products comply with reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU.

Inrush Current

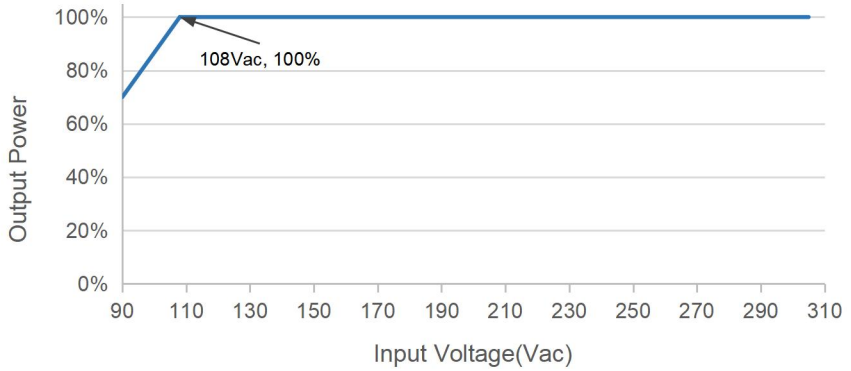


Vin	Ipeak	T(@10% of Ipeak)	T(@50% of Ipeak)
230Vac	38A	153μs	94μs

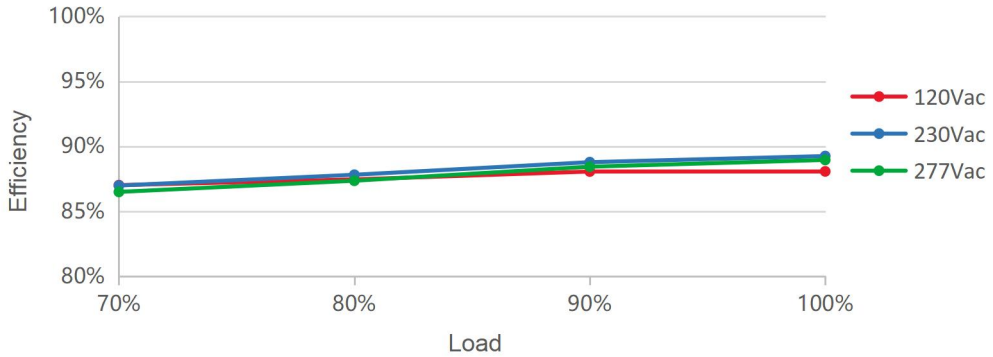
Output Voltage vs. Output Current(X6E-050M056-G)



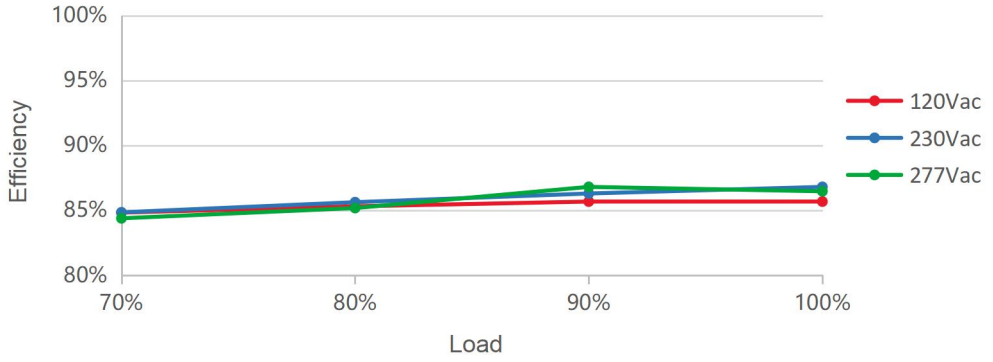
Output Power vs. Input Voltage



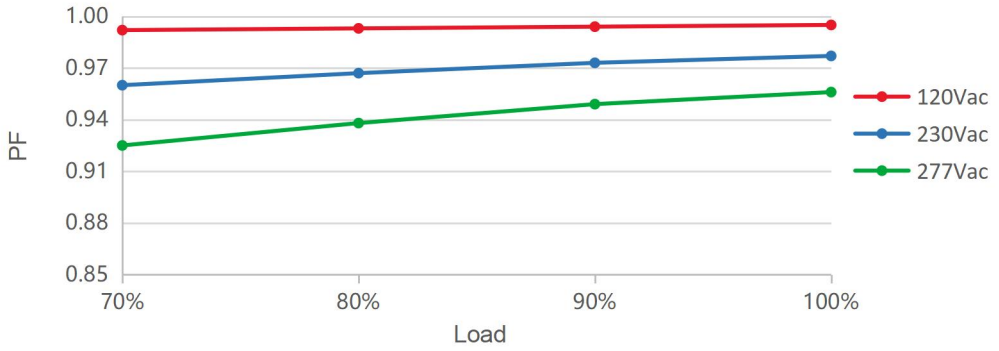
Efficiency vs. Load (Io=0.90A)



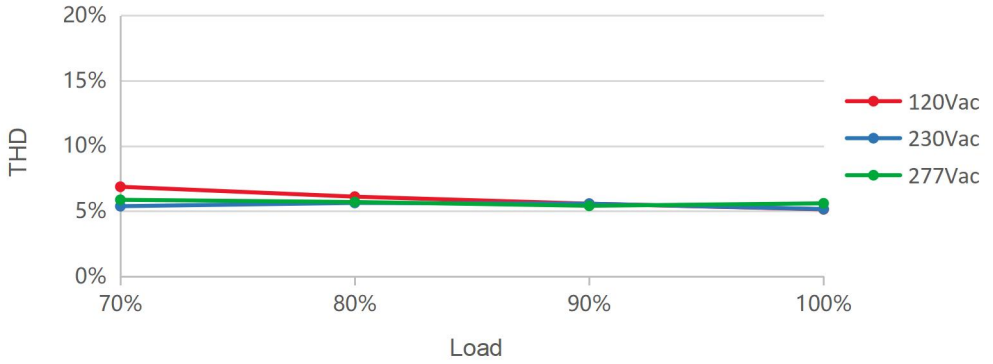
Efficiency vs. Load (Io=1.50A)



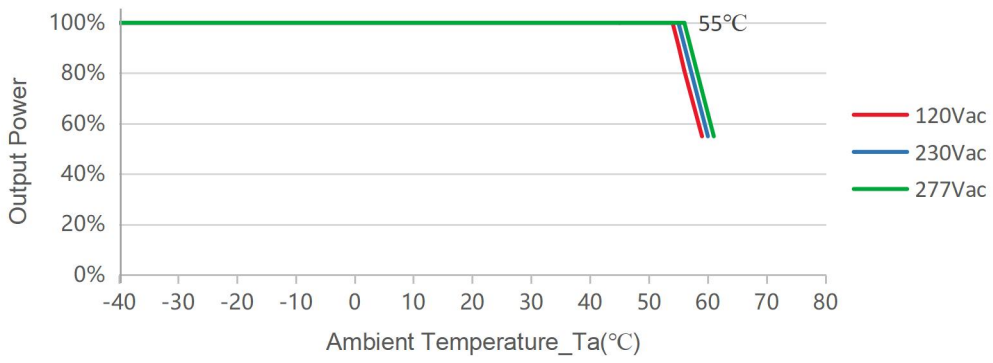
PF vs. Load



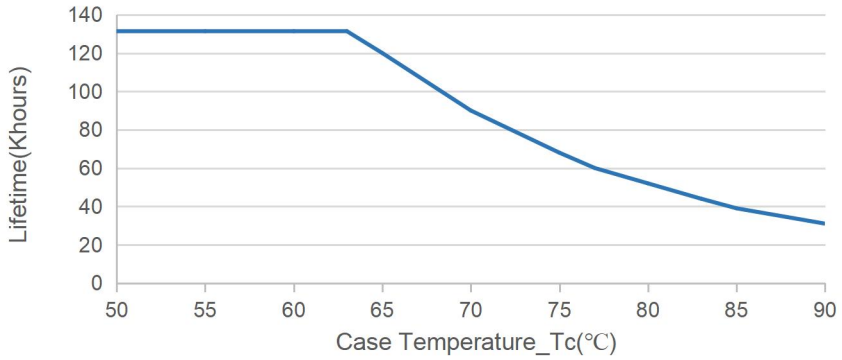
THD vs. Load



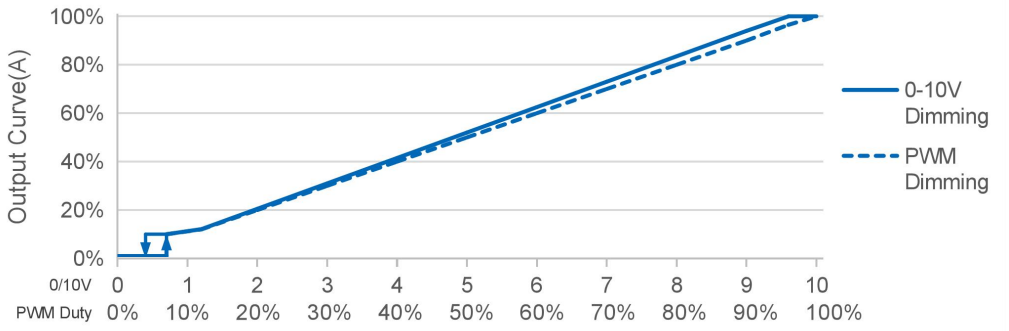
Output Power vs. Ambient Temperature



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 I

Visual Intelligent Programming

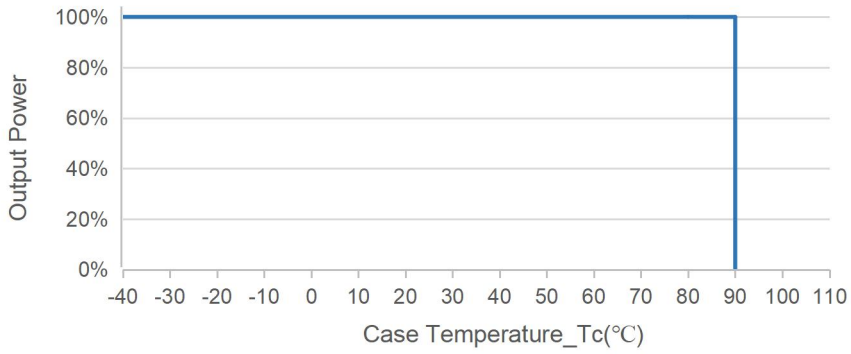
1. Set the output parameters through the control signal line 0-3.3V/0-5V/0-9V/0-10V optional.
2. Timer dimming. Set the timer control function, support up to 7 segments;
3. Set output CLO;
4. Read the recorded system parameters; Record the working time working temperature, and software version information 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.

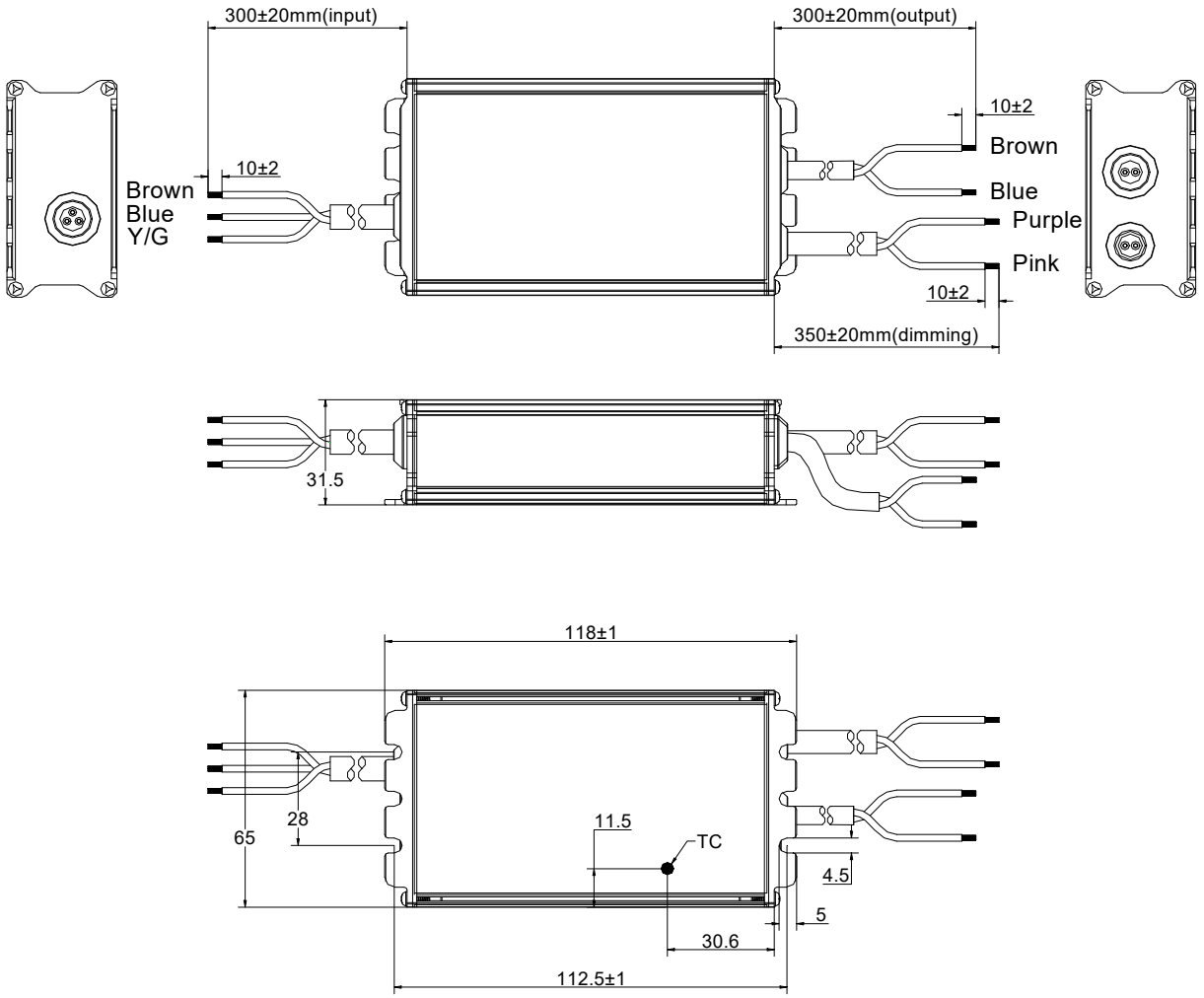
Output Power vs. Case Temperature



Note: The driver will turn off the output current when the case temperature exceeds 95℃, and will not return to normal even if over temperature condition is removed. If you want to restart the output of the driver, you need to wait until the case temperature of the driver is below 90℃, and then connect the driver to a PC to reconfigure it via software without changing any configuration parameters.

If you do not need the auto cut-off function, can reset the option "Lock Driver when OTP occurs" by software and uncheck it, the auto cut-off function will be cancelled. The driver will derate instead of turning off the output current when the case temperature exceeds 95℃.

Mechanical Outline



Specification

Input	CCC+VDE H05RN-F 3*1.0 mm2 L=300±20mm	CCC/CE
Output	CCC+VDE H05RN-F 2*1.0 mm2 L=300±20mm	CCC/CE
Dimming	UL 2733/21996 2*22AWG L=350±20mm	UL

Version

A.1	Innitial version	2025/08/14

Product Technical Specification

Product Name: X6E Small power series LED Driver

Product Model: X6E-050M056-G

Rev: Innitial version

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Prepared By	Checked By	Approved By

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