Description

The X6-42W series is a 42W outdoor off-line programmable LED driver that operates in constant current with universal input voltage range of 90~305Vac. 0/1-10V/PWM/Timer dimming; reverse dimming optional(10V-1/0V, 5V-1/0V), Monitored off-line by dimming cable connected with an USB kit programming device, the fully programmed drivers offer all dimming, constant lumen output options and a wide range of output current in a single driver, providing maximum flexibility with customized operating settings and intelligent control options for lighting manufacturers, as one driver can be programmed for many different luminaire designs. X6 provides built-in timer dimming schedules that further increase the energy savings and CO_2 reductions achieved with LED lighting. It also helps customers to improve logistics and inventory management. The compact metal case and high efficiency enables the driver to operate with high reliability and extend product life. Overall protection is provided against lightening surge, output over voltage, short circuit, and over temperature, to ensure low failure rate.

Product Features

- Universal input voltage: 90~305Vac;
- Isolated constant current design;
- 0-10V/ PWM/timer dimming (Dim-to-off), Reverse dimming optional;
- Off-line programmable;
- High surge protection: 4KV line-line, 6KV line-earth;
- Protections: Output SCP / OVP / OTP;
- Dim line surge protection: 2KV line-line, 4KV line-earth;
- IP67 design for indoor and outdoor applications;
- Suitable for dry / damp / wet locations;
- 5 years warranty;

Application

Road lighting,
Tunnel 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.)
X6-042M120-F	90~305	42	50~120	0.35~0.70	0.70	89%	0.97	10%

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.

Input Specifications

Parameter	Min	Typ.	Max	Notes
Input Voltage Range	90Vac	100-277Vac	305Vac	
Input Frequency AC	47Hz	50/60Hz	63Hz	
Max Input Current	-	-	0.7A	100Vac & 100%Load
Max Input Power	-	-	55W	100Vac & 100%Load
Leakage Current	-	-	0.70mA	IEC60598-1;240Vac/60Hz
Inrush Current	-	-	60A	240Vac，Ta=25℃（cold start)
Power Factor (PF)	0.92	0.93	-	220-240Vac，60Hz，50%-100% load
Power Factor (PF)	0.95	0.97	-	220Vac，50Hz，100% load
Total Harmonic Distortion (THD)	-	10%	15%	220-240Vac，60Hz，50%-100% load
Total Harmonic Distortion (THD)	-	5%	10%	220Vac，50Hz，100% load
MCB(B16)	-	22	-	230Vac；100%load

Output Specifications

Parameter	Min	Typ.	Max	Notes
Output Voltage Range	50Vdc	-	120Vdc	The dim-to-off function is not recommended when the output voltage is below 69 Vdc.
Open Circuit Voltage	-	-	150Vdc	
Output Current Range	0.07A	-	0.70A	Adjustable Output Current with programmer
Full Power Current Range	0.35A	-	0.70A	
Current Accuracy	-5%Imax	-	+5%Imax	I_{max} is full power maximum current
Total Output Current Ripple (pk-pk)	-	80%	120%	20MHz BW full load＆LED load the LED load ripple is slightly different for different leds
Startup Overshoot Current	-	-	10%	220-240Vacfull load condition，LED load
Line Regulation	-3%	-	+3%	25℃±10℃ambient temperature, input changes from 200Vac to 264Vac
Load Regulation	-5%	-	+5%	Load varies from 70% to 100% with 230Vac Input at 25℃±10℃ ambient temperature
Turn-on Delay Time	-	-	1.0s	240Vac,100% load

General Specifications

Parameter	Min	Typ.	Max	Notes
Efficiency@230Vac Io=0.35A Io=0.70A	 87.0% 86.5%	 89.0% 88.5%	-	100% load，25℃ ambient temperature
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	-	95℃	-	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.
Dimming cable surge Protection	-			DM 2KV,CM 4KV;Incorrect connection to 220Vac input will not damage the driver.
Dimensions (L*W*H)	116*64*33mm			
Net Weight	480±50g/PCS			
Package (L*W*H)	488*298*200mm;15PCS/Ctn, Gross Weight: 8.5Kg			

Dimming

Parameter	Min	Typ.	Max	Notes
Absolute Maximum Voltage	-	10V	-	On the Vdim (+) Pin
Source Current on Vdim (+)Pin	-	200uA	400uA	
Dimming Range	10% I_{max}	-	100% I_{max}	I_{max}=0.70A
Suggest Dimming Input 0-10V	0V	-	10V	
Turn-on Voltage(0-10V)	0.7V	-	1.0V	
Turn-off Voltage(0-10V)	0.4V	-	0.7V	
Turn-on Voltage(10-0V)	9.0V		9.3V	
Turn-off Voltage(10-0V)	9.3V		9.6V	
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(0-10V)	7%	-	10%	
Turn-Off Duty Cycle(0-10V)	4%	-	7%	
Turn-on Duty Cycle(10-0V)	90%		93%	
Turn-Off Duty Cycle(10-0V)	93%		96%	

Safety Specification

Parameter	Min	Typ.	Max	Notes
Dielectric Strength（Input-Output）	-	3200Vac	-	60s，Current not exceeding 5mA
Dielectric Strength（Input-Ground）	-	1554Vac	-	60s，Current not exceeding 5mA
Dielectric Strength（Output-Ground）	-	1300Vac	-	60s，Current not exceeding 5mA
Dielectric Strength（Input-Dimming）	-	3200Vac	-	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 AS/NZS 61347.1		

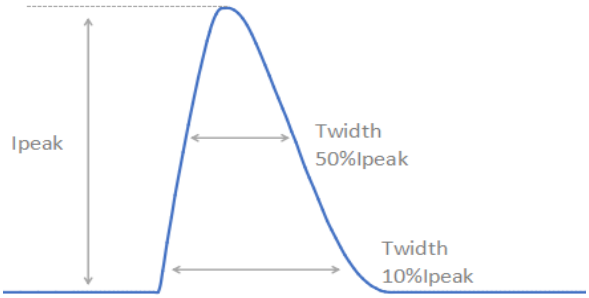
EMC Compliance

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

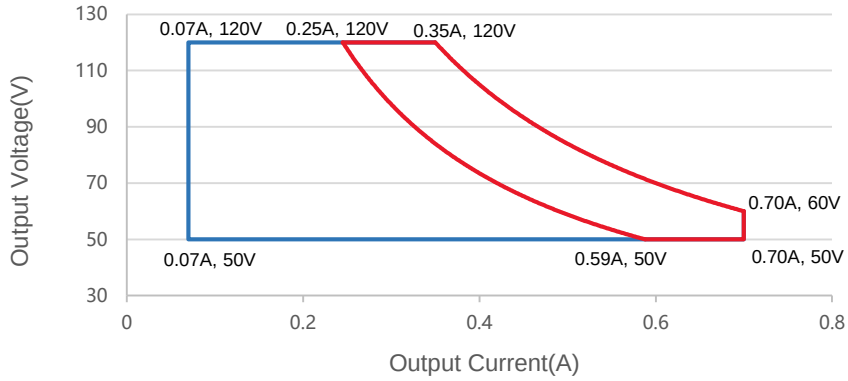
Our products comply with reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU.

Inrush Current



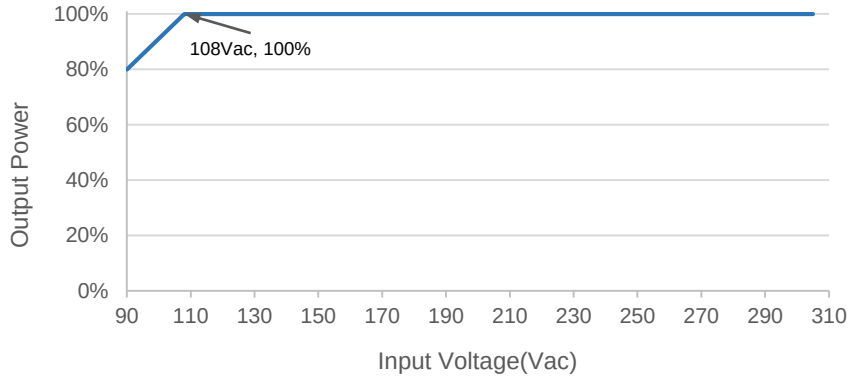
Vin	Ipeak	T(@10% of Ipeak)	T(@50% of Ipeak)
230Vac	45A	158uS	110uS

Output Voltage vs. Output Current

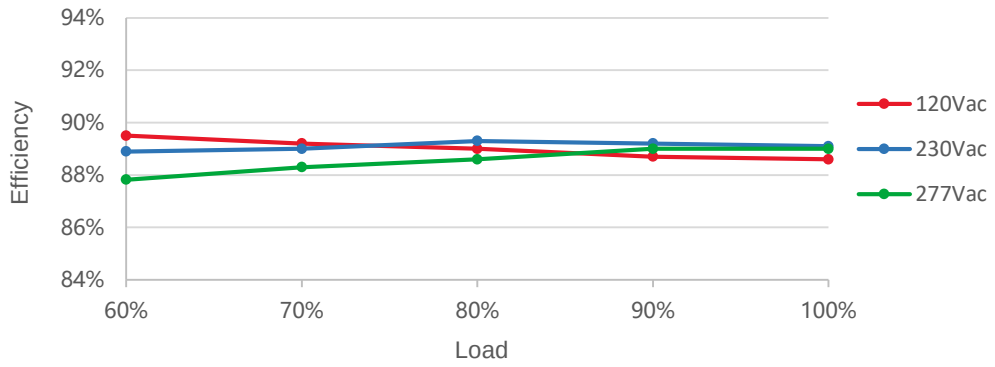


Red curve: good performance area

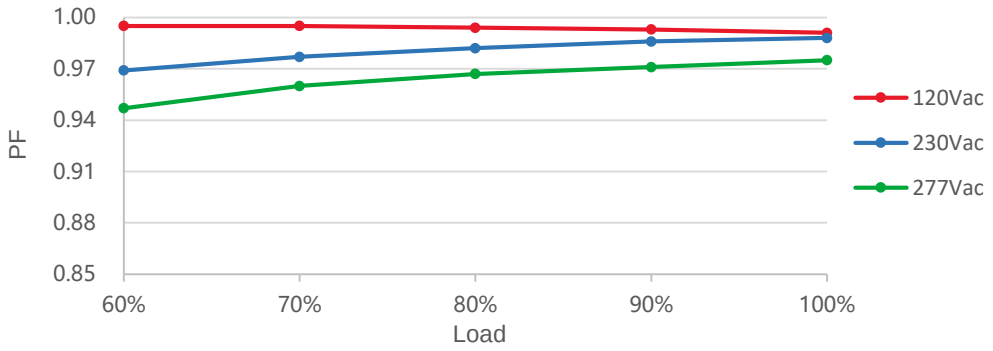
Output Power vs. Input Voltage



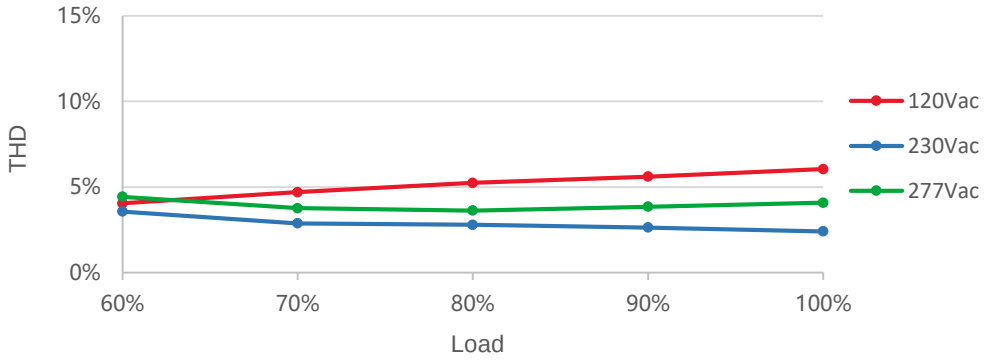
Efficiency vs. Load



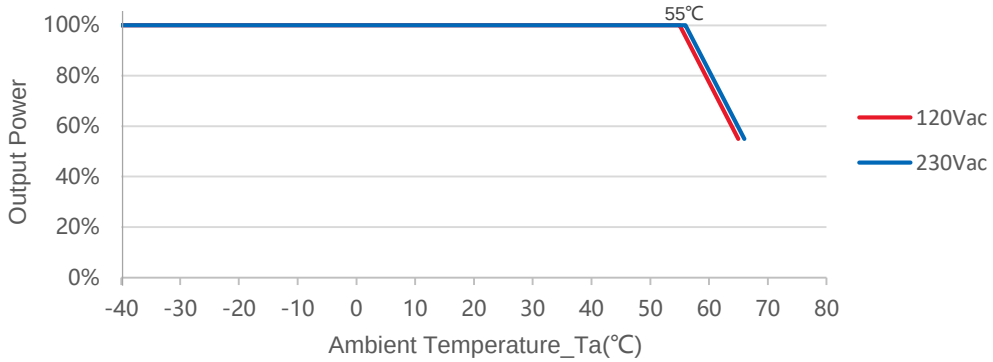
PF vs. Load



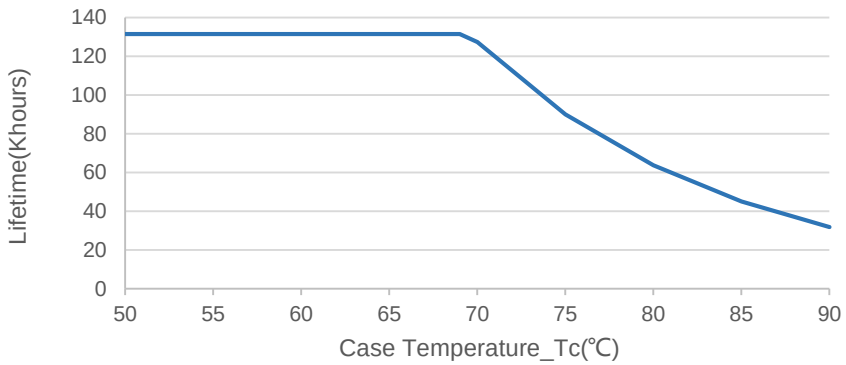
THD vs. Load



Output Power vs. Ambient Temperature

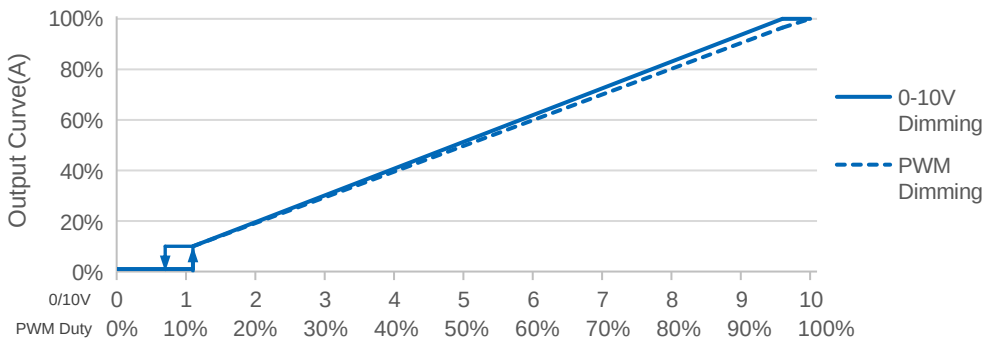


Lifetime vs. Case Temperature



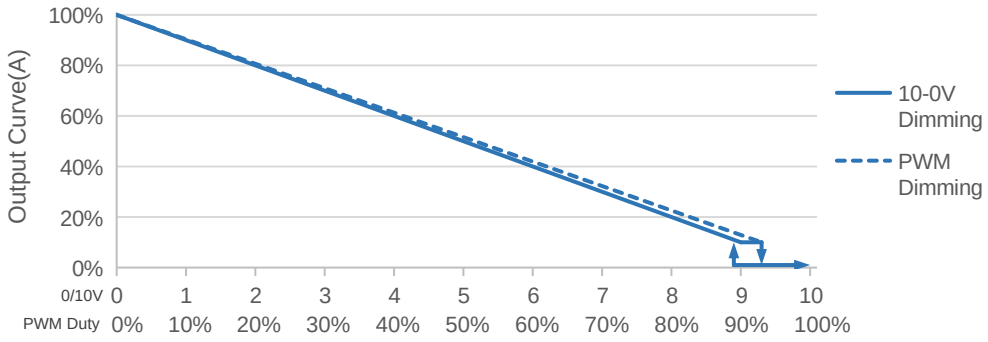
Dimming Curve

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.

10-0V/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,X6ESeries).

Programming mode 1

Visual Intelligent Programming

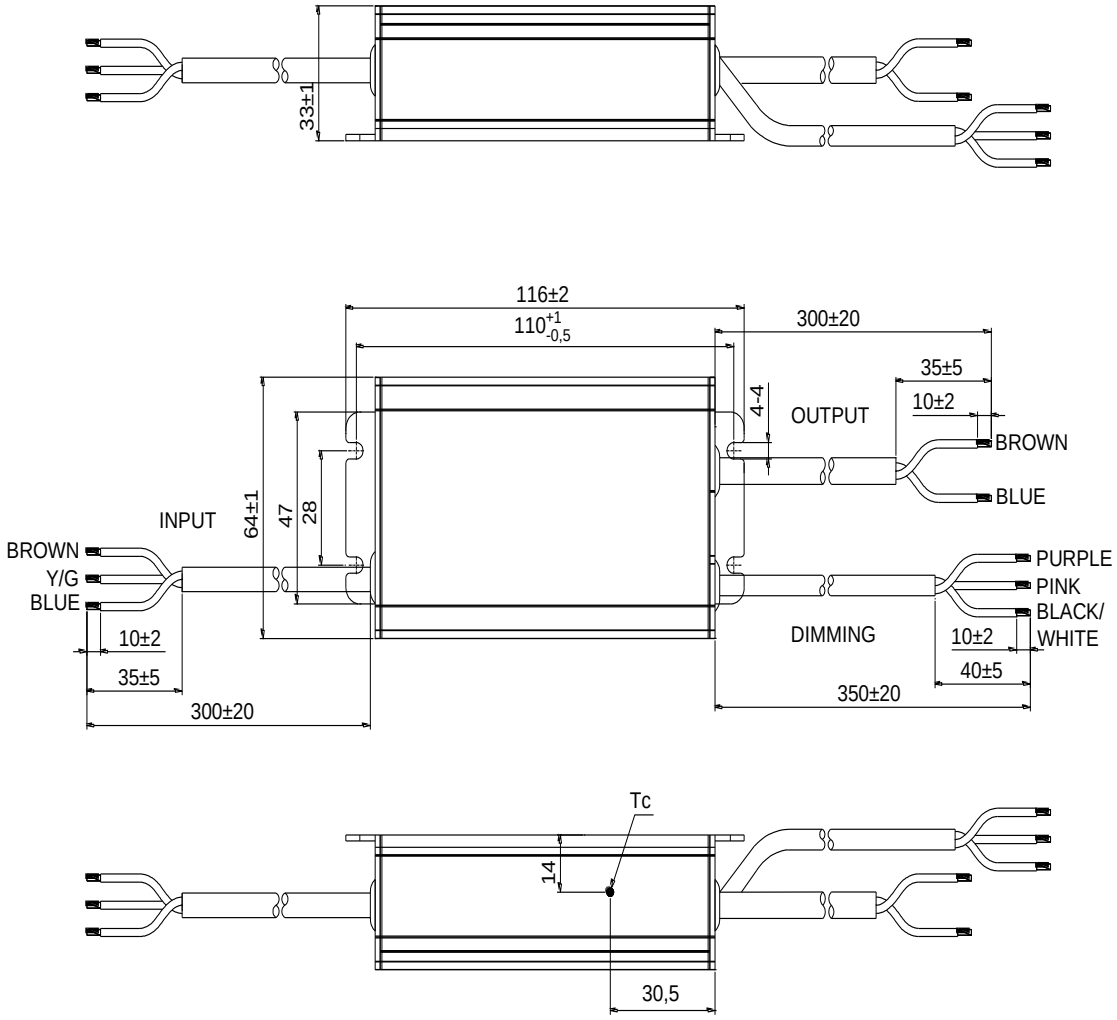
1. Set the output parameters through the control signal line 0-5V/0-10V optional.
2. Timer dimming. Set the timer control function, support up to 7 segments;
3. Set output CLO;
4. Read the recorded system parameters; Record the working time working temperature, and software version information of the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

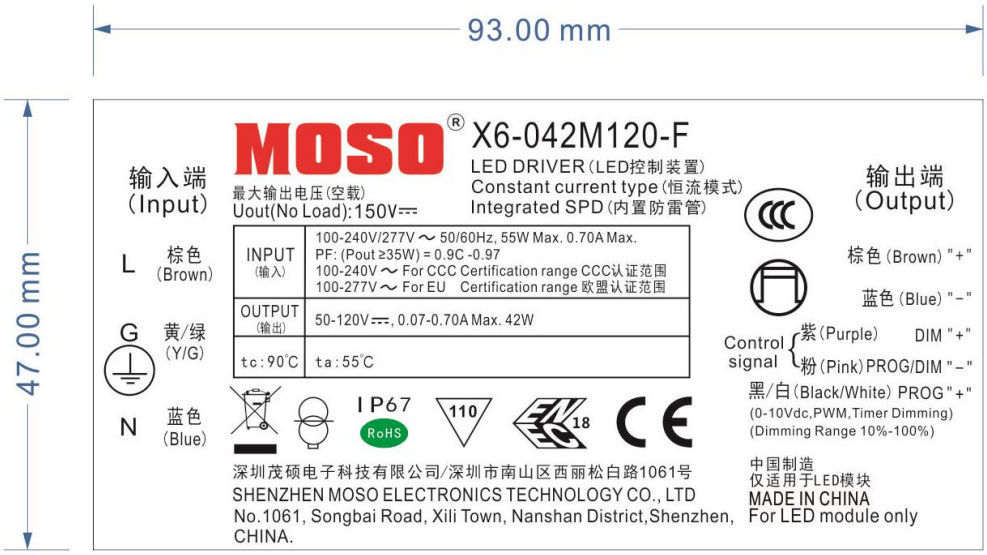
Mechanical Outline



Specification

Input	CCC+VDE 2*1.0 mm² L=300±20mm	CCC/CE
Output	CCC+VDE 2*1.0 mm² L=300±20mm	CCC/CE
Dimming	UL21996 22AWG 3x1.0mm² L=350±20mm	UL

Label


93.00 mm
47.00 mm
MOSO®
X6-042M120-F
LED DRIVER（LED控制装置）
Constant current type（恒流模式）
Integrated SPD（内置防雷管）
最大输出电压(空载)
Uout(No Load):150V⎓
输入端
(Input)
L 棕色 (Brown)
G 黄/绿 (Y/G)
N 蓝色 (Blue)
INPUT (输入)
100-240V/277V ～ 50/60Hz, 55W Max. 0.70A Max.
PF: (Pout ≥35W) = 0.9C -0.97
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)
50-120V⎓, 0.07-0.70A Max. 42W
tc:90°C
ta:55°C
IP67
RoHS
110
18
输出端
(Output)
棕色 (Brown) "+"
蓝色 (Blue) "−"
Control signal
紫 (Purple) DIM "+"
粉 (Pink) PROG/DIM "−"
黑/白 (Black/White) PROG "+"
(0-10Vdc,PWM,Timer Dimming)
(Dimming Range 10%-100%)
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
SHENZHEN MOSO ELECTRONICS TECHNOLOGY CO., LTD
No.1061, Songbai Road, Xili Town, Nanshan District,Shenzhen, CHINA.
中国制造
仅适用于LED模块
MADE IN CHINA
For LED module only

Version

A.1	V0	2024-04-26

Specification for Approval

Product Name：42W LED Driver

Product Model：X6-042M120-F

Rev：A.1

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: 42W LED Driver

Product Model: X6-042M120-F

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
Tel: 0755-27657000
FAX: 755-27657908
E-mail:info@mosopower.com
Web Site:http://www.mosopower.com

Prepared By	Checked By	Approved By