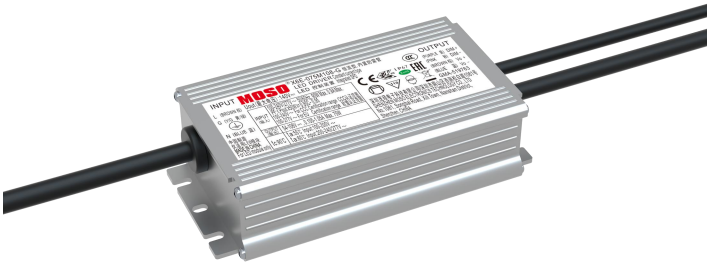
Description

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-075M108	100~277	75	54~108	0.70~1.05	1.05	92.0%	0.97	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 at full load, if no specific note.

Input Specifications

Parameter	Min	Typ.	Max	Notes
Input Voltage Range	90Vac	120/220~240/ 277Vac	305Vac	
Input Frequency AC	47Hz	50/60Hz	63Hz	
Max Input Current	-	-	0.9A	120Vac & 100% load
Max Input Power	-	-	90W	120Vac & 100% load
Leakage Current	-	-	0.70mA	IEC 60598-1; 240Vac/60Hz
Inrush Current	-	-	75A	240Vac, 100% load
Power Factor (PF)	0.97	0.99	-	120Vac，50-60Hz，70%-100% load
Power Factor (PF)	0.95	0.97	-	230Vac，50-60Hz，70%-100% load
Power Factor (PF)	0.92	0.94	-	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	54Vdc	-	108Vdc	
Open Circuit Voltage	-	130Vdc	140Vdc	
Output Current Range	0.105A	-	1.05A	Adjustable Output Current with programmer
Full Power Current Range	0.7A	-	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℃±10℃ ambient temperature, input changes from 120Vac to 277Vac
Load Regulation	-3%	-	+3%	Load varies from 70% to 100% with 230Vac Input at 25℃ ±10℃ ambient temperature
Turn-on Delay Time	-	-	60s	240Vac,100% load, 25℃ ±10℃ ambient temperature

General Specifications

parameter	Min	Typ.	Max	Notes
Efficiency@120Vac Io=1.05A Io=0.7A	 86.6% 86.8%	 88.6% 88.8%	-	100% load, 25℃±10℃ ambient temperature
Efficiency@230Vac Io=1.05A Io=0.7A	 90.0% 90.0%	 92.0% 92.0%	-	100% load, 25℃ ambient temperature
Efficiency@277Vac Io=1.05A Io=0.7A	 90.0% 90.0%	 92.3% 92.3%	-	100% load, 25℃±10℃ ambient temperature
Mean Time Between Failure	-	200Khours	-	25℃±10℃ ambient temperature，230Vac，80% load condition (MIL-HDBK-217/SR-332)
Lifetime	-	100Khours	-	230Vac＆100% load，Tc 75℃，refer to lifetime vs. case temperature curve
Operating Temperature Ta	-60℃	-	+55℃	100~200Vac, Output Power vs. Ambient Temperature curve Start up at -60°C is only applicable for input voltages between 176VAC and 305VAC
Operating Temperature Ta	-60℃	-	+60℃	200~277Vac, Output Power vs. Ambient Temperature curve Start up at -60°C is only applicable for input voltages between 176VAC and 305VAC
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	
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℃	-	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)	132*68*35mm			
Net Weight	590±50g/PCS			
Package (L*W*H)	466*282*172mm; 16PCS/Ctn, Gross Weight: 11.4Kg			

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_{max}	-	100% I_{max}	
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）	-	1280Vac	-	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 19510.213, GB/T 19510.1	√	
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		

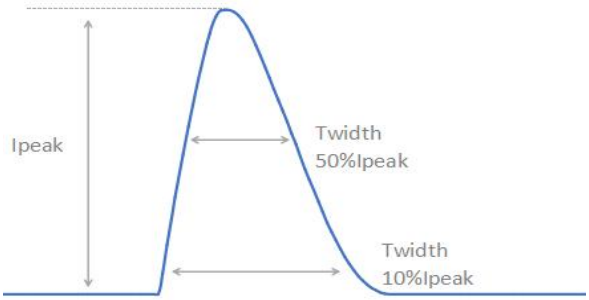
EMC Compliance

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 ЕН 55015 ГОСТ IEC 61547		
EAC	ГОСТ 30804.3.2 (IEC 61000-3-2) ГОСТ 30804.3.3 (IEC 61000-3-3)		

RoHS

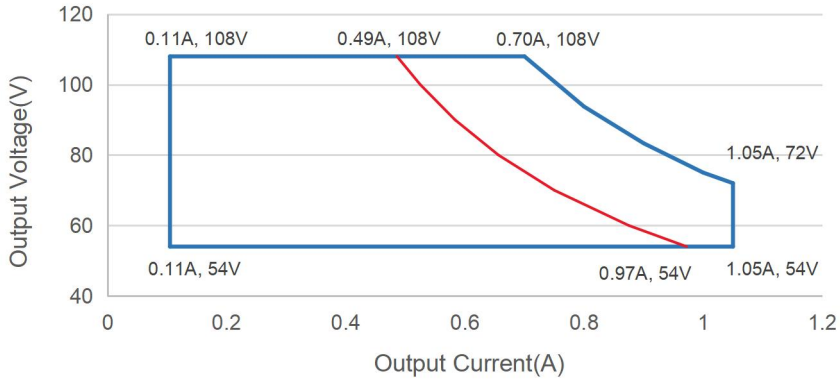
Our products comply with reference to RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Inrush Current



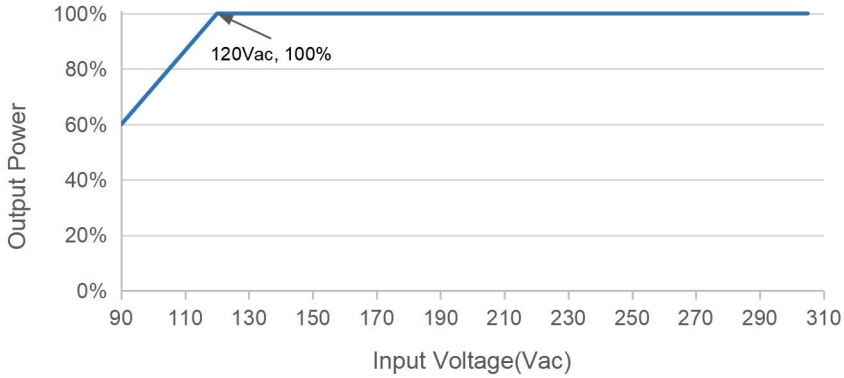
Vin	Ipeak	T(@10% of Ipeak)	T(@50% of Ipeak)
240Vac	37.4A	628μs	340μs

Output Voltage vs. Output Current

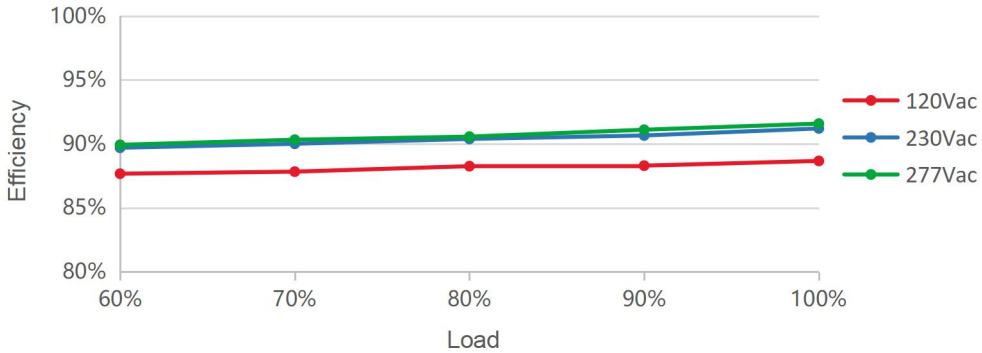


Red curve: good performance area

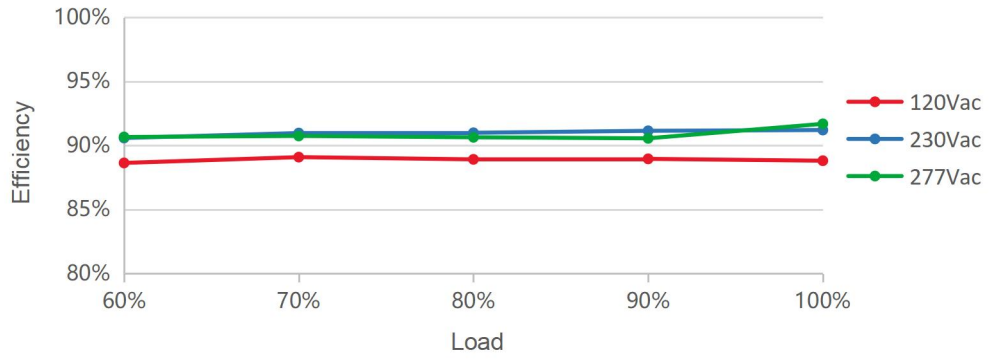
Output Power vs. Input Voltage



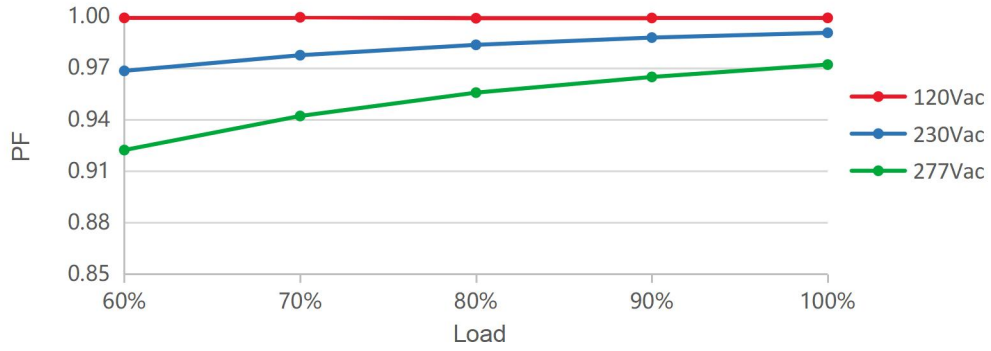
Efficiency vs. Load(Io=1.05A)



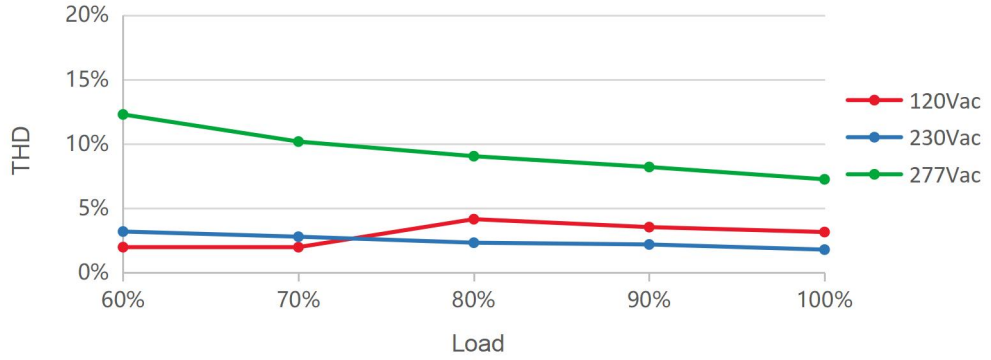
Efficiency vs. Load(Io=0.70A)



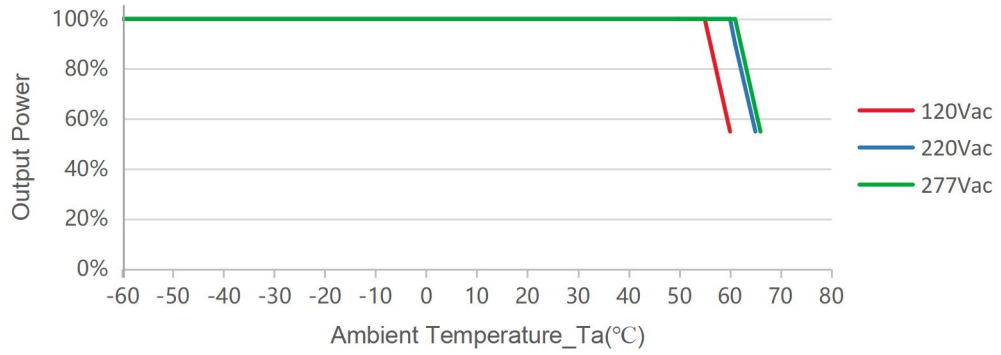
PF vs. Load



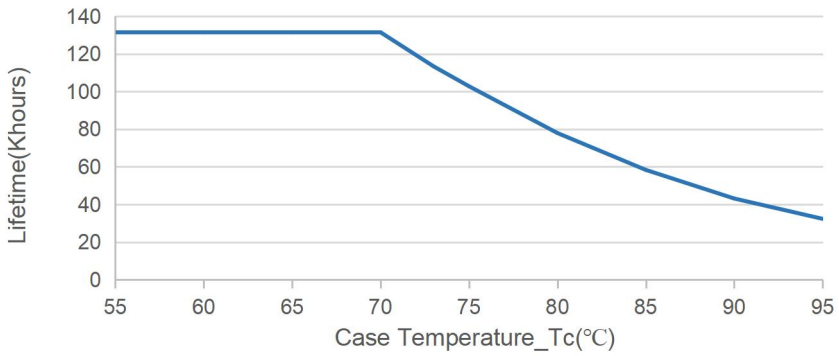
THD vs. Load



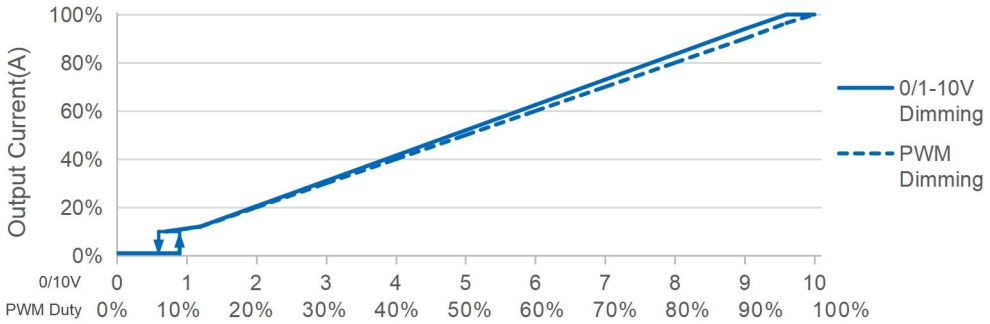
Output Power vs. Ambient Temperature



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,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.

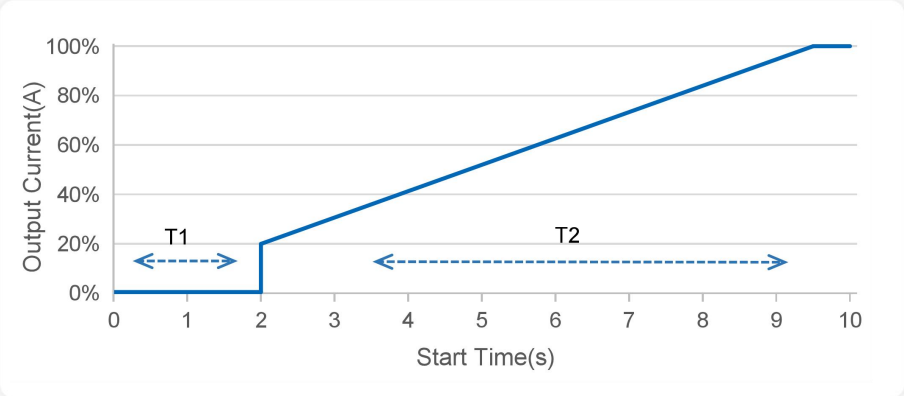
Programming mode 2

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 asubtle 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%).

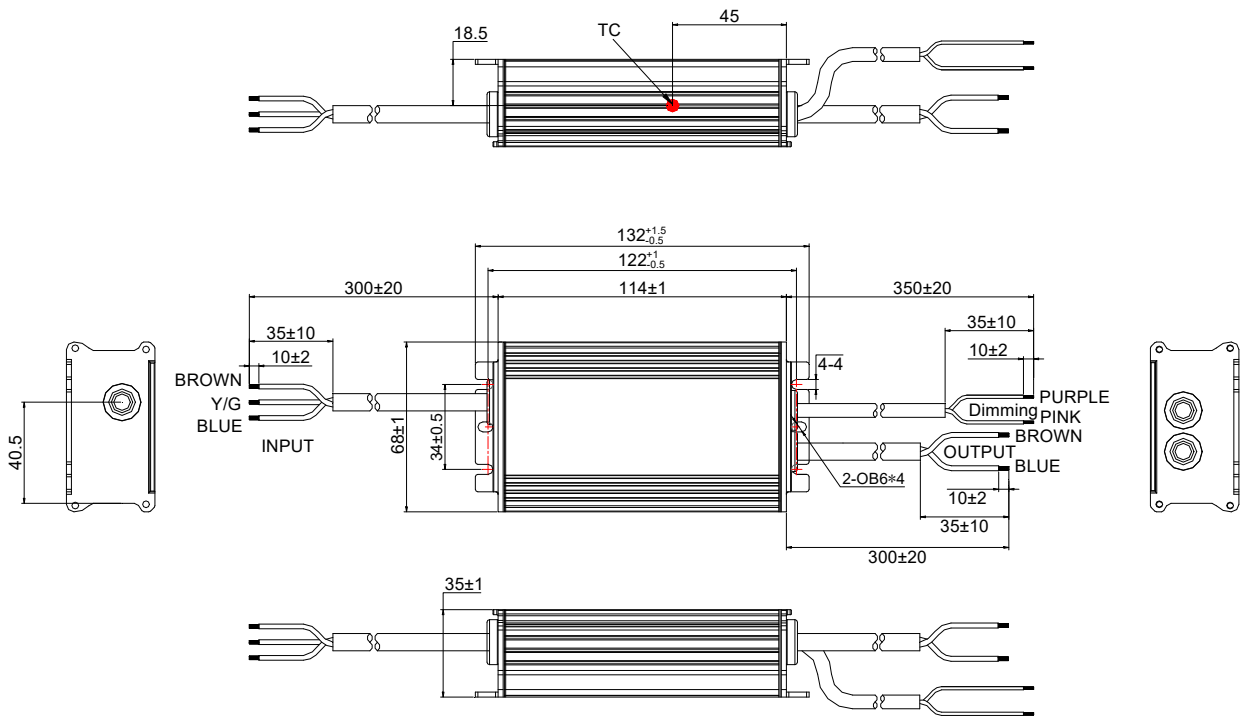


Soft-start Curve

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 +/- 0.5s).

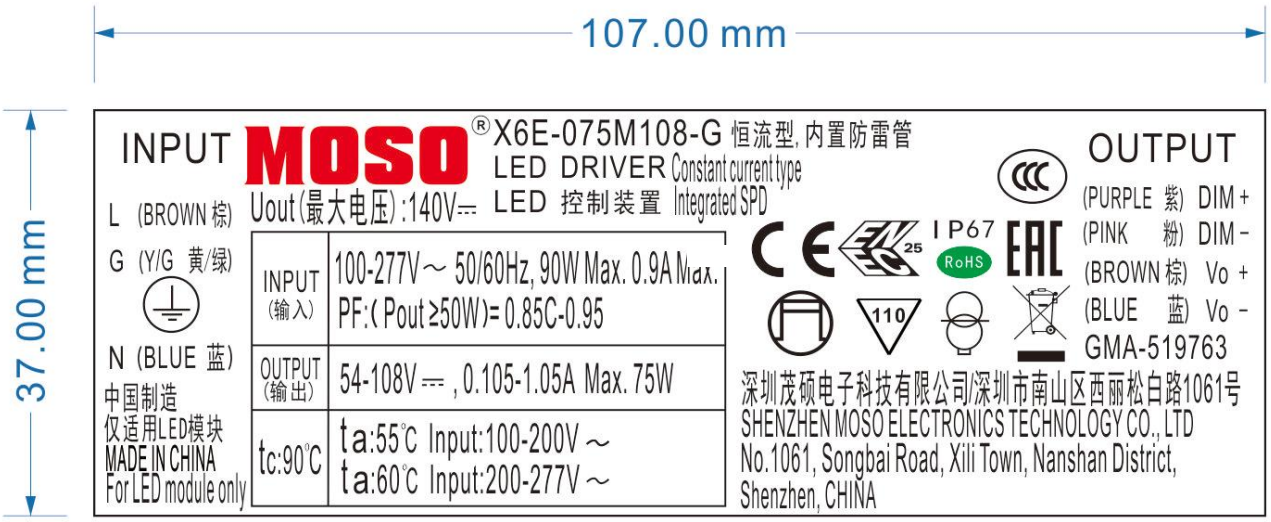
Mechanical Outline



Specification

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

Label



Version

A.1	First release	2024-09-02

Specification for Approval

Product Name: 75W LED Driver

Product Model: X6N-075M108

Rev: A.1

Address: XiLi Songbai Road 1061, Nanshan District, Shenzhen City, Guangdong, China
Tel: 0755-27657000
FAX: 0755-27657908
E-mail: info@mosopower.com
Web Site: http://www.mosopower.com

Prepared By	Checked By	Approved By

Specification for Approval

Product Name: 75W LED Driver

Product Model: X6N-075M108

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.		

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Prepared By	Checked By	Approved By