

Description

The X7P series is outdoor programmable LED driver that operates in constant current with high PF value and full power input voltage range 90~264Vac, the X7P series provide multiple isolated dimming controls, Dim-to-Off, offline programming function can easily set the output current and dimming mode, 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 IP68 rating and extending product lifetime. Overall protection is provided against lightning surge, output over voltage, short circuit and over temperature to ensure low failure rate.



Product Features

- Input voltage range: 90~264Vac;
- Rated input voltage : 100Vac,200Vac,220~240Vac
- Constant power design, output current programmable adjustable;
- 3-in-1 dimmable: 0~10Vdc / PWM/Timer dimming, Dim to off
- Output and Dimming Signal Isolating;
- Surge protection: 6KV line-line, 15KV line/line-earth;
- Protections: UVP / LVP / SCP / OVP / OTP;
- IP68 design for indoor and outdoor applications;
- Suitable for dry / damp / wet locations;
- 5 years warranty;

Application

Roadway lighting
Industrial lighting
Landscape 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.)
X7P-200M286	90-264	200	143-286	0.70-1.20	1.10	92%	0.97	5%

Notes:

- [1]. M means 0-10V/PWM dimming.
- [2]. All specifications are measured at 25°C ambient temperature, input voltage 200Vac, and the typical value tested at full load, if no specific note.

Input Specifications

Parameter	Min	Typ.	Max	Notes
Input Voltage Range	90Vac	100Vac~240Vac	264Vac	
Full Power Work Range	100Vac	200Vac	240Vac	Refer to Output Power vs. Input Voltage curve.
Input Frequency AC	47Hz	50/60Hz	63Hz	
Max Input Current	-	-	2.8A	100Vac & 100% load.
Max Input Power	-	-	240W	100Vac & 100% load.
Leakage Current	-	-	0.70mA	IEC 60598-1; 240Vac/60Hz.
Inrush Current	-	-	75A	240Vac, 100% load.
Power Factor (PF)	0.96	0.98	-	100Vac, 50-60Hz, 70%-100% load.
Power Factor (PF)	0.96	0.97	-	200Vac, 50-60Hz, 70%-100% load.
Power Factor (PF)	0.94	0.97	-	240Vac, 50-60Hz, 70%-100% load.
Total Harmonic Distortion (THD)	-	5%	10%	100-240Vac, 50-60Hz, 70%-100% load.
MCB(B16)	-	3	-	240Vac; 100% load.

Output Specifications

Parameter	Min	Typ.	Max	Notes
Output Voltage Range	143Vdc	-	286Vdc	
No-Load Output Voltage	-	-	310Vdc	
Output Current Range	10% I_{max}	-	100% I_{max}	$I_{max}=1.2A$
Output Current Setting Range	0.12A	-	1.20A	Adjustable output current with programmer
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%	100-240Vac full load condition, LED load.
Line Regulation	-1%	-	+1%	25°C $\pm$ 10°C ambient temperature, input changes from 100Vac to 240Vac.
Load Regulation	-2%	-	+2%	Load varies from 70% to 100% with 200Vac Input at 25°C $\pm$ 10°C ambient temperature.
Turn-on Delay Time	-	-	1.0s	100~240Vac, 25°C $\pm$ 10°C ambient temperature.

General Specifications

Parameter	Min	Typ.	Max	Notes
Efficiency@100Vac Io=0.70A	88.0%	90.0%	-	100% load, 25°C ambient temperature
Efficiency@100Vac Io=1.20A	88.0%	90.0%	-	100% load, 25°C ambient temperature
Efficiency@200Vac Io=0.70A	90.0%	93.0%	-	100% load, 25°C ambient temperature
Efficiency@200Vac Io=1.20A	90.0%	92.0%	-	100% load, 25°C ambient temperature
Efficiency@240Vac Io=0.70A	91.0%	93.0%	-	100% load, 25°C ambient temperature
Efficiency@240Vac Io=1.20A	91.0%	92.0%	-	100% load, 25°C ambient temperature
Mean Time Between Failure	-	300Khours	-	25°C±10°C ambient temperature, 200Vac, 80% load condition (MIL-HDBK-217/SR-332).
Lifetime	-	50Khours	-	200Vac & 100% load, Tc 75°C, refer to lifetime vs. case temperature curve.
Operating Temperature Ta	-40°C	-	+50°C	100-240Vac, refer to 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	65Vac	75Vac	85Vac	25°C ambient temperature, Turn off the output or hiccup when the input voltage falls below protection voltage.
Input Over voltage Protection	300Vac	305Vac	320Vac	25°C ambient temperature, Turn off the output when the input voltage exceeds protection voltage. When the fault condition is removed, restart and resume.
Recovery Voltage	280Vac	290Vac	300Vac	25°C ambient temperature, Auto recovery, the driver will restart when the input voltage falls below recovery voltage
Over Temperature Protection Tc	-	90°C	-	Tolerance±5°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)	219*68.4*37mm			
Net Weight	1060±100g/PCS			
Package(L*W*H)	376*352*172mm; 12PCS/Ctn, Gross Weight:15.32Kg			For reference only

Dimming

Parameter	Min	Typ.	Max	Notes
Absolute Maximum Voltage	-10V	10V	20V	On the Vdim (+) Pin.
Source Current on Vdim (+)Pin	-	200uA	400uA	
Dimming Range	10% I _{max}	-	100% I _{max}	I _{max} =1.2A.
Suggest Dimming Input 0-10V	0V	-	10V	
Turn-on Voltage	0.9V	-	1.2V	
Turn-off Voltage	0.6V	-	0.9V	
PWM in High Level	9.7V	-	10.3V	
PWM in Low Level	0V	-	0.3V	
PWM in Frequency Range	500Hz	-	2KHz	
PWM in Duty Cycle	1%	-	99%	
Turn-on Duty Cycle	10%	-	13%	
Turn-off Duty Cycle	7%	-	10%	
Timer dimming	-	-	-	winter and summer time
Output lumen compensation	-	-	-	Constant lumen output function set by the programmer

Safety Specification

Parameter	Min	Typ.	Max	Notes
Dielectric Strength (Input-Output)	-	3250Vac	-	60s, Current not exceeding 5mA.
Dielectric Strength (Input-Dimming)	-	3000Vac	-	60s, Current not exceeding 5mA.
Dielectric Strength (Input-Ground)	-	1500Vac	-	60s, Current not exceeding 5mA.
Dielectric Strength (Output-Ground)	-	1650Vac	-	60s, Current not exceeding 5mA.
Dielectric Strength (Dim-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/NZS IEC 61347.2.13		
SAA	AS/NZS 61347.1		

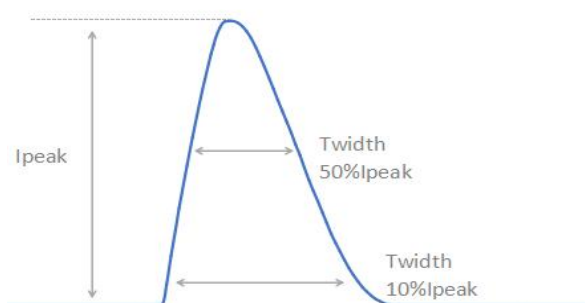
EMC Compliance

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		
Ringling Wave			

RoHS

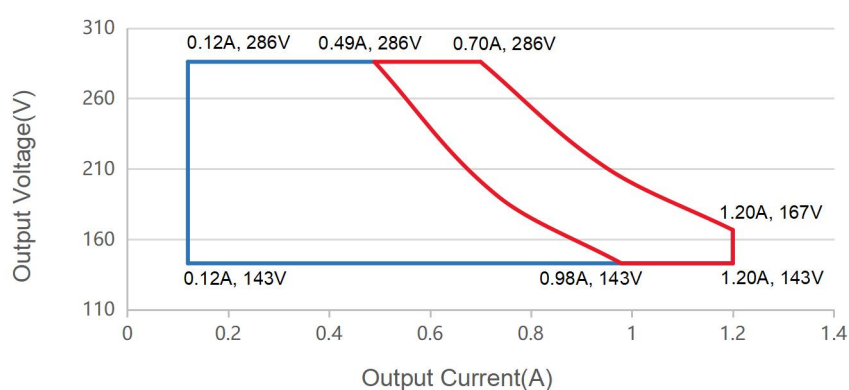
Our products comply with RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Inrush Current



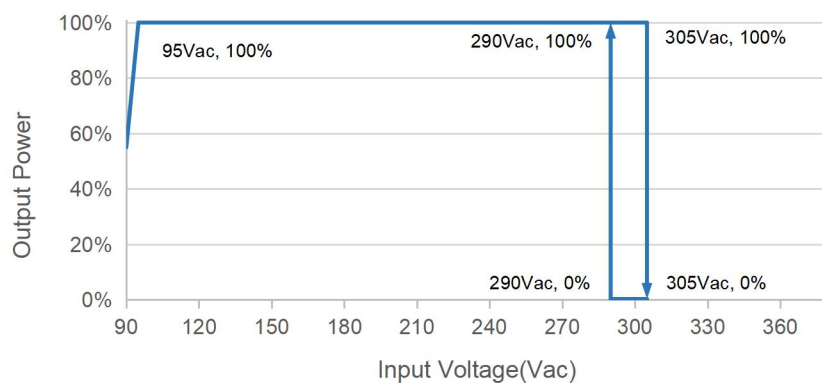
V_{in}	I_{peak}	$T_{@10\% \text{ of } I_{peak}}$	$T_{@50\% \text{ of } I_{peak}}$
100Vac	32.0A	1150 μ s	360 μ s
200Vac	61.0A	1120 μ s	390 μ s
240Vac	68.0A	1080 μ s	430 μ s

Output Voltage vs. Output Current

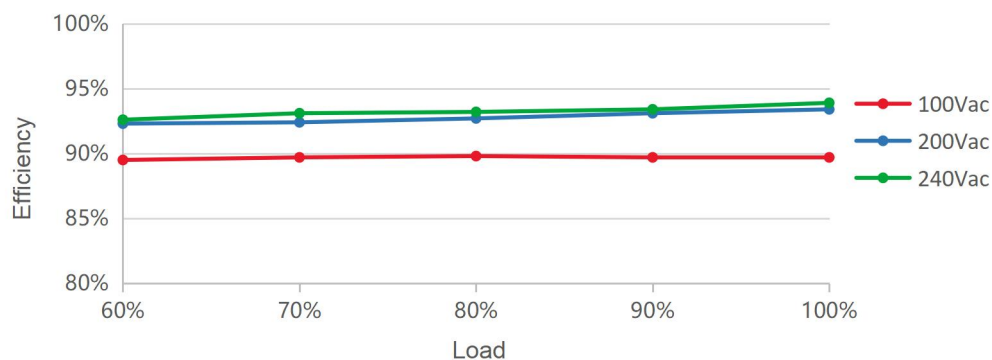


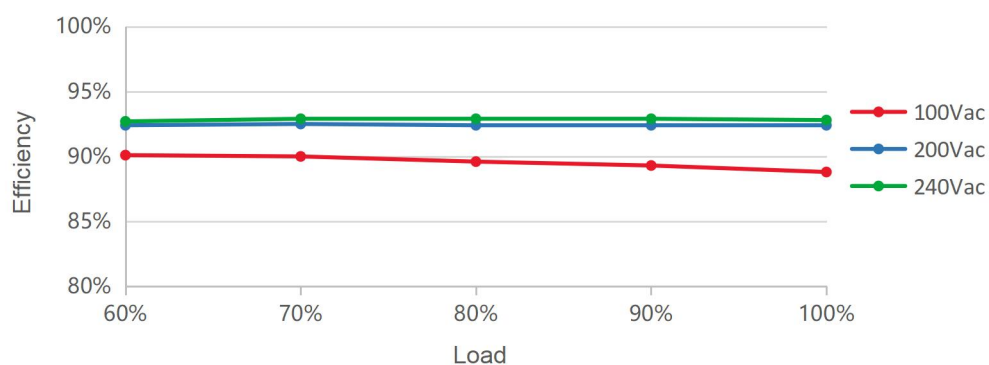
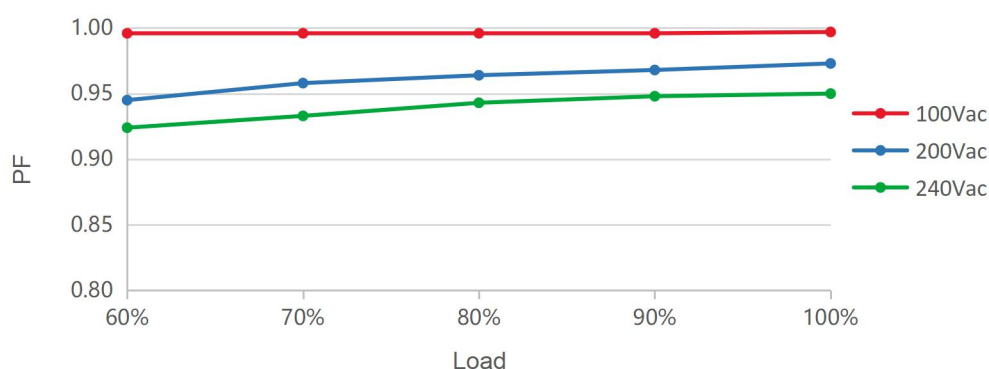
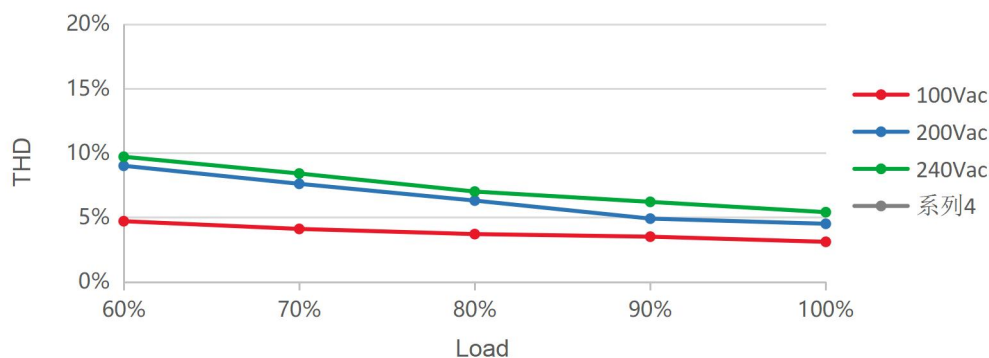
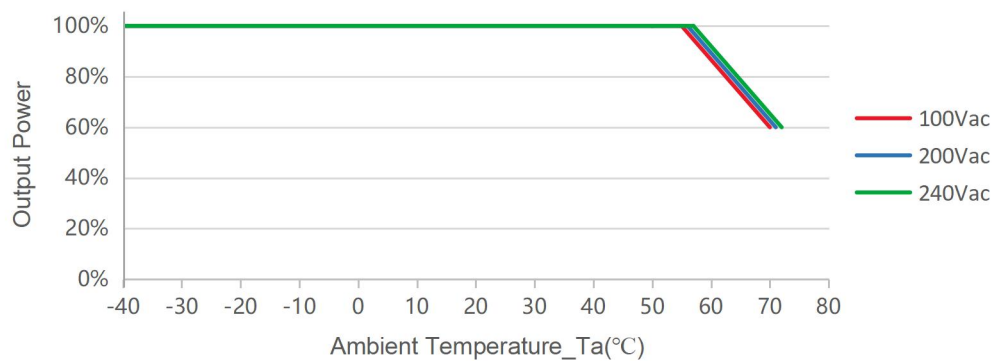
Red curve: good performance area.

Output Power vs. Input Voltage

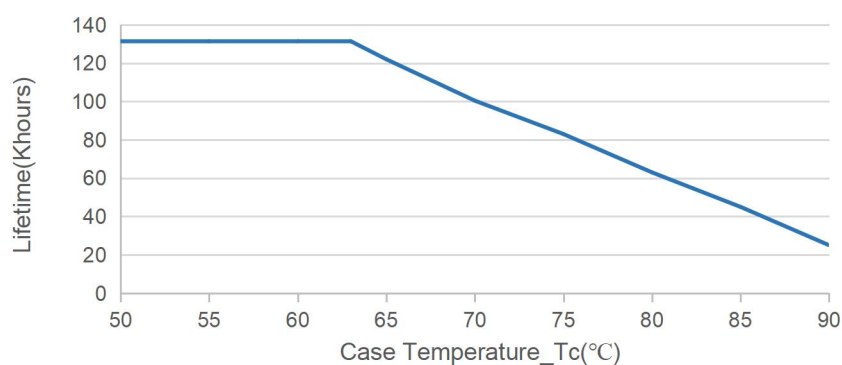


Efficiency vs. Load ($I_o=0.70A$)

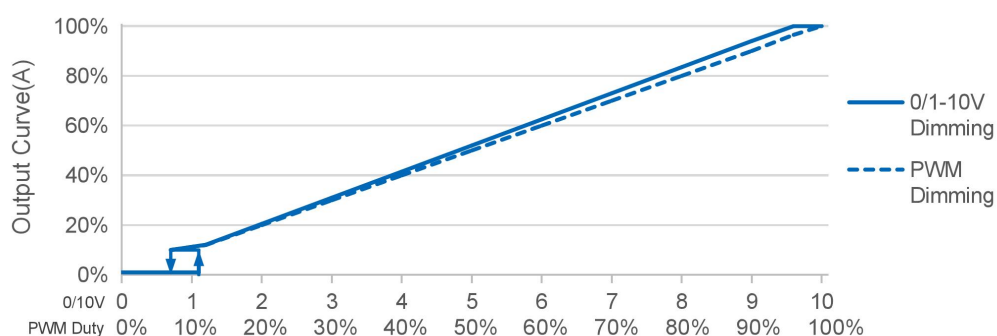


Efficiency vs. Load (Io=1.20A)

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, X7P, G5 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

Operating instructions

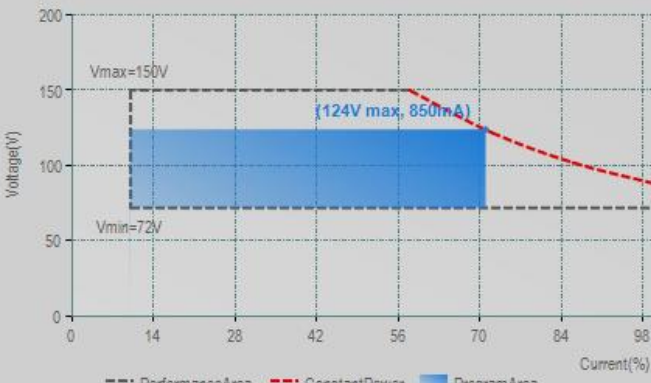
The Soft-start function is disabled by default. Select "EN_SoftStart" and set the parameters to enable it (Default 3s or dimming 20%).

LED Driver Programming Utility(V0.4.43.7 Pro4 VIP)

MOSO® 茂硕电源 Connected

Connect [中/En]

U-I Curve



Model: X7P-105M150-S

Read Default

Import Save Programming Download to offline programmer

☒ Set Current

I Max 1200 mA

I Set 850 mA

Select Dimming Mode

☒ Signal Dimming

☐ Timer Dimming

Signal Dimming Timer Dimming Constant Lumen Output Data Record

☐ Cut-off Setup

☒ Cut-off

Off Value 8 %

On Value 11 %

☐ Set Dimmer Voltage

0--10V

☐ Set Reverse Dimming

☐ Enable reverse dimming

☒ Signal Line Max. Voltage

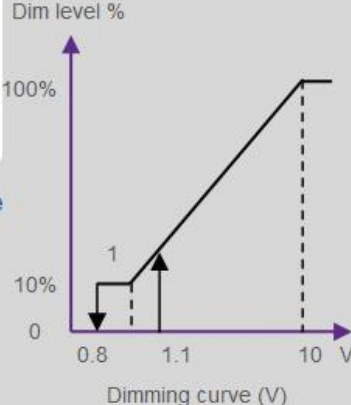
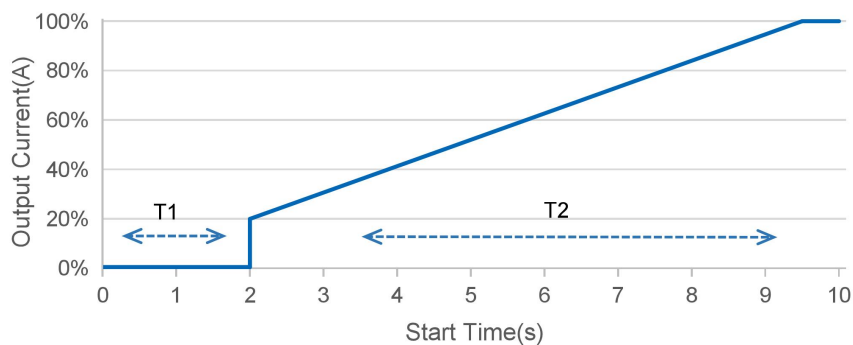
SoftStart

☒ EN_SoftStart

Time 3 s

Out 20 %

The T2 time can be set here

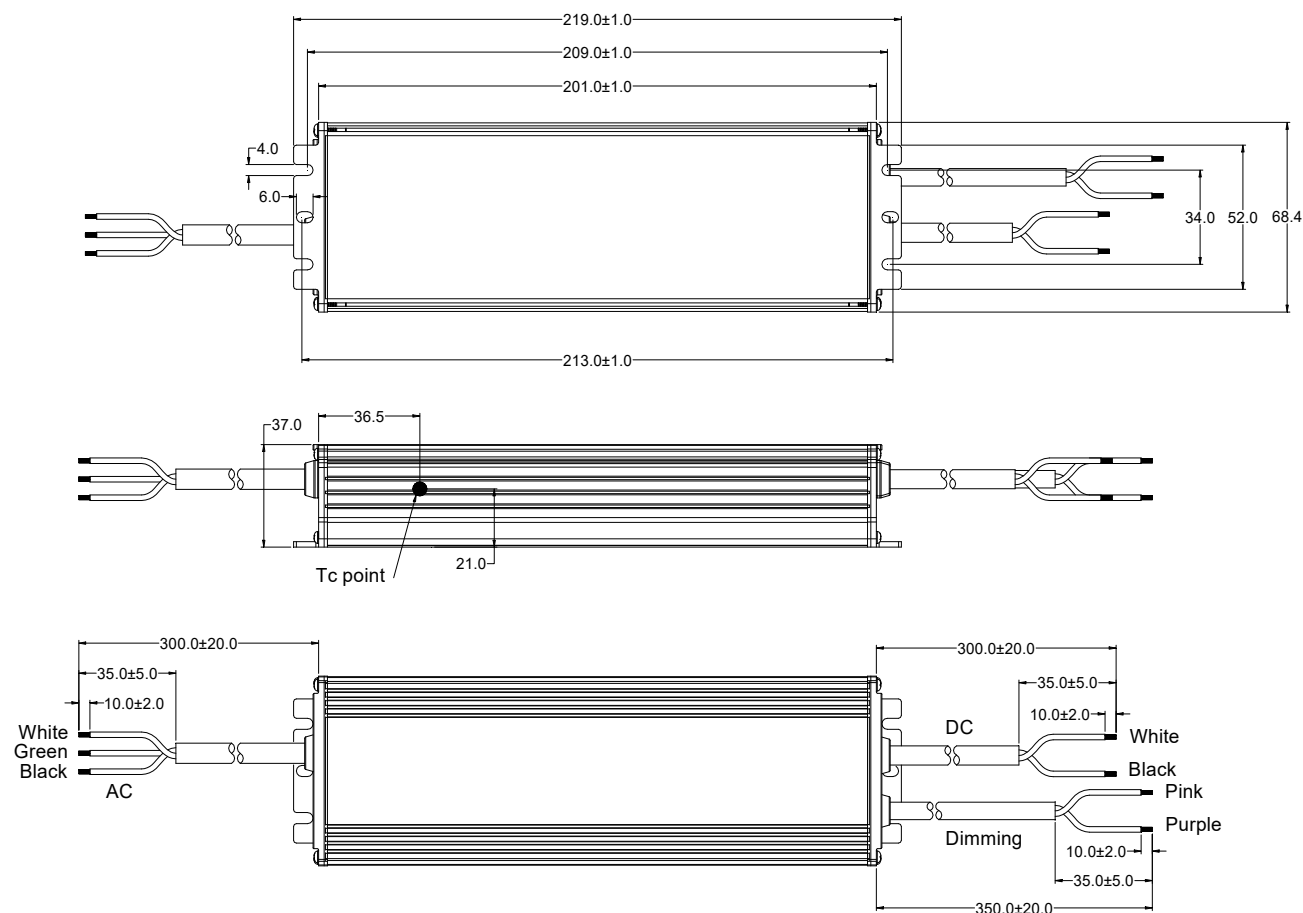



Soft-start Curve

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 1~8s (with a tolerance of $\pm 0.5s$).

Mechanical Outline



Specification

Input	PSE 3x1.25mm ² external diameter:8.0 L=300±20mm	PSE
Output	PSE 2x1.25mm ² external diameter:7.8 L=300±20mm	PSE
Dimming	UL2733 18AWG*2C Ø6.35mm L=350±20mm	Dim+/Dim-, A12

Label

入力 L BLACK 黒色線 G GREEN 緑色線 N WHITE 白色線		MOSO [®] X7P-200M286 Constant current type LED DRIVER Integrated SPD		LED出力 WHITE 白色線 Vo+ BLACK 黒色線 Vo- PURPLE 紫色線 DIM+ PINK 粉色線 DIM-	
入力 100-240V~ 50/60Hz, 2.8A Max. PF: 0.95, 240W 出力 143-286V [~] 0.12-1.20A Uout Max: 310V [~] Max. Power: 200W tc: 90 °C ta: 50 °C		IP68 1.5M RoHS XXX 株式会社		MADE IN CHINA LEDモジュール専用	

Notes: (XXX 株式会社) Subject to change.

Version

A.3	First release	2023-09-22
B.2	ECL202401024	2024-01-22
C.2	ECL202401047	2024-02-18

Specification for Approval

Product Name: 200W LED Driver

Product Model: X7P-200M286

Rev: C.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: 200W LED Driver

Product Model: X7P-200M286

Rev: C.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