

Description

The X6N series is outdoor programmable LED driver that operates in constant current with high PF value, 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 enables 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: 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.)
X6N-320M056	176-277	320	28-56	5.71~7.50	5.0	94.0%	0.98	6%

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 at full load, if no specific note.

Input Specifications

Parameter	Min	Typ.	Max	Notes
Input Voltage Range	176Vac	220~240/ 277Vac	305Vac	
Input Frequency AC	47Hz	50/60Hz	63Hz	
Max Input Current	-	-	4.2A	176Vac&100% load
Max Input Power	-	-	400W	176Vac&100% load
Leakage Current	-	-	0.70mA	IEC 60598-1; 240Vac/60Hz
Inrush Current	-	-	4.5A ² s	230Vac, 100% load
Power Factor (PF)	0.96	0.98	-	230Vac, 50-60Hz, 60%-100% load
Power Factor (PF)	0.93	0.95	-	277Vac, 50-60Hz, 60%-100% load
Total Harmonic Distortion (THD)	-	5%	10%	176-230Vac, 50-60Hz, 60%-100% load
Total Harmonic Distortion (THD)	-	10%	15%	277Vac, 50-60Hz, 60%-100% load
MCB(B16)	-	2	-	240Vac; 100%load

Output Specifications

Parameter	Min	Typ.	Max	Notes
Output Voltage Range	28Vdc	-	56Vdc	The full power cannot be lower than 42.6Vdc
Open Circuit Voltage	-	-	70Vdc	
Output Current Range	0.75A	-	7.50A	Adjustable Output Current with programmer
Full Power Output Current Range	5.71A	-	7.50A	
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%	100-277Vac full load condition, LED load
Line Regulation	-1%	-	+1%	25℃±10℃ ambient temperature, input changes from 200Vac to 264Vac
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

General Specifications

Parameter	Min	Typ.	Max	Notes
Efficiency@230Vac Io=5.71A Io=7.50A	92.3% 91.8%	94.3% 93.8%	-	100% load, 25℃ ambient temperature
Efficiency@277Vac Io=5.71A Io=7.50A	92.7% 92.3%	94.7% 94.3%	-	100% load, 25℃ ambient temperature
Mean Time Between Failure	-	200Khours	-	25℃±10℃ambient temperature , 230Vac , 80% load condition (MIL-HDBK-217/SR-332)
Lifetime	-	70Khours	-	230Vac & 100% load , Tc 75℃ , refer to lifetime vs. case temperature curve
Operating Temperature Ta	-60℃	-	+45℃	100~200Vac, Output Power vs. Ambient Temperature curve
Operating Temperature Ta	-60℃	-	+55℃	200~277Vac, 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	
Input Under voltage Protection	71Vac	81Vac	88Vac	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)	243.5*78*41.5mm			
Net Weight	1450±50g/PCS			
Package (L*W*H)	L448mm*W308mm*H130mm; 6PCS/Ctn.; Gross Weight: 10.6kg			For reference only

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}	I _{max} is set to the full power range
Suggest Dimming Input 0-10V	0V	-	10V	
Turn-on Voltage	0.7V	0.9	1.0V	
Turn-off Voltage	0.4V	0.6	0.7V	Afterglow may appear after switching off. It is necessary to conduct grounding test with lighting fixture.
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%	Afterglow may appear after switching off. It is necessary to conduct grounding test with lighting fixture.
Timer dimming	-	-	-	3 types, which is set by software
Output lumen compensation	-	-	-	Constant lumen output function

Safety Specifications

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)	-	500Vac	-	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 19510.1, GB/T 19510.213	√	
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		

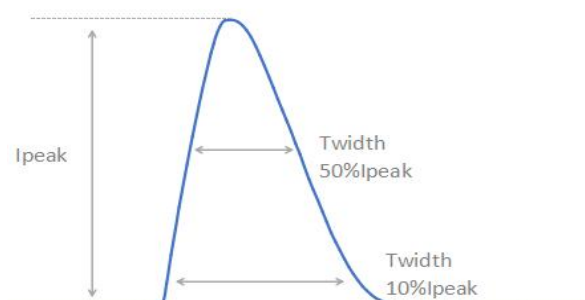
EMC Compliance

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

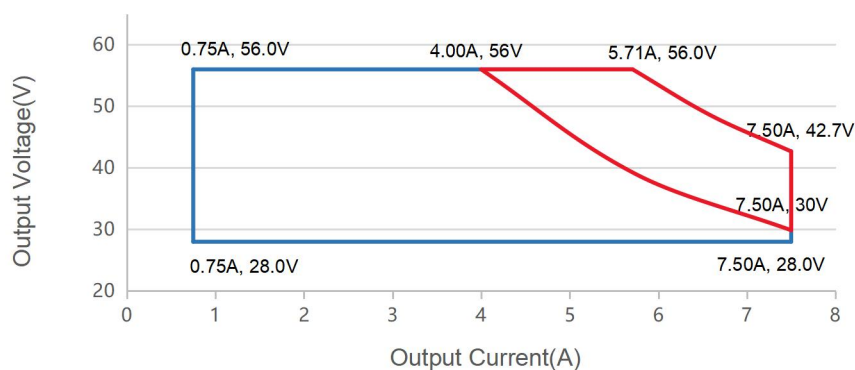
Our products comply with RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Inrush Current



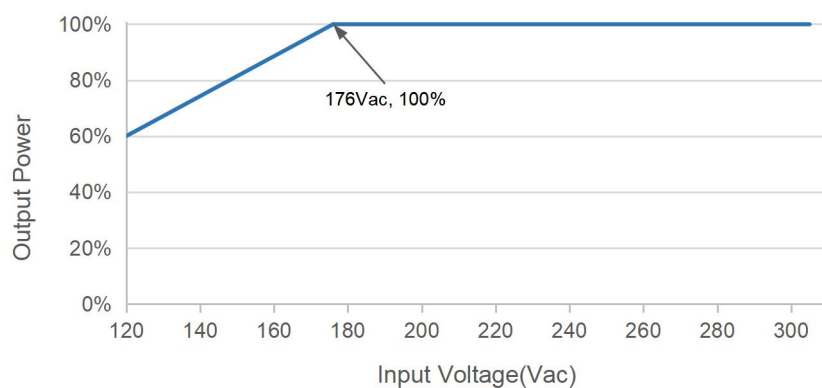
V_{in}	I_{peak}	$T(@10\% \text{ of } I_{peak})$	$T(@50\% \text{ of } I_{peak})$
230Vac	114A	916 μ s	432 μ s
277Vac	152A	852 μ s	408 μ s

Output Voltage vs. Output Current

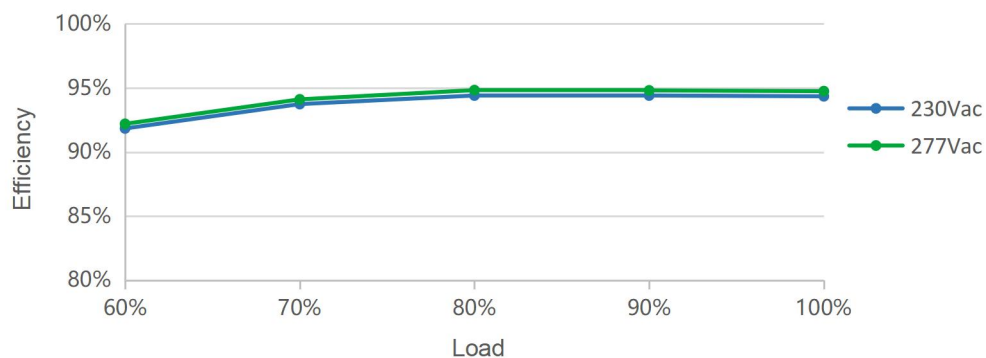


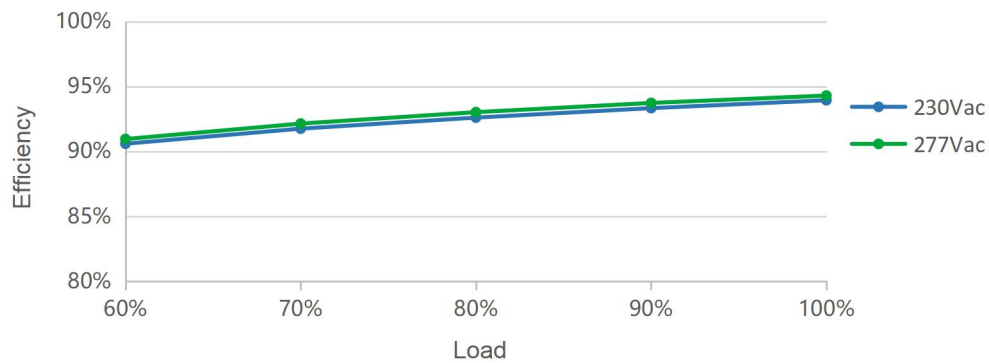
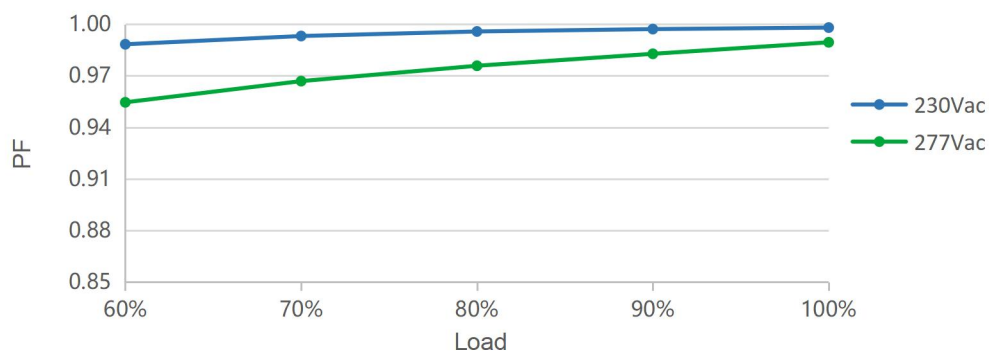
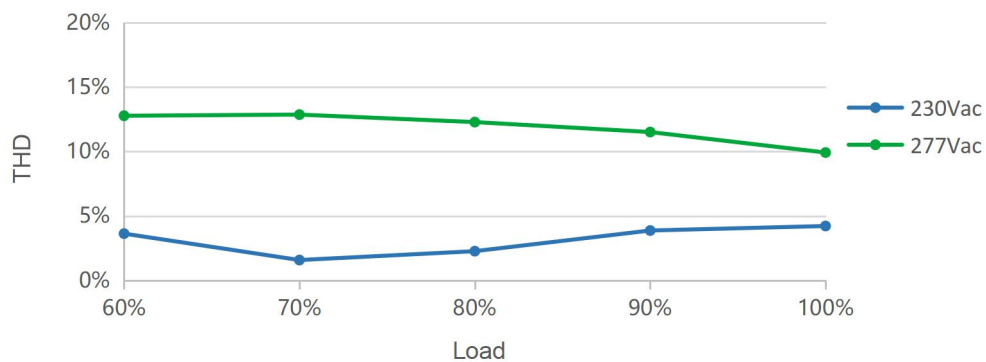
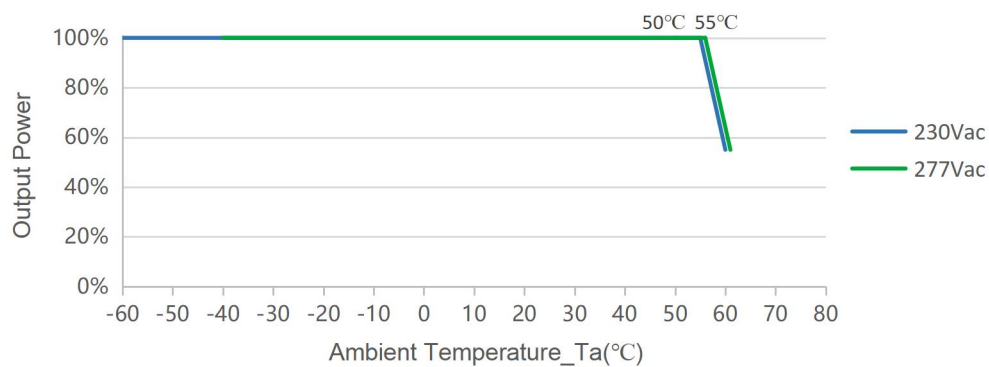
Red curve: good performance area

Output Power vs. Input Voltage

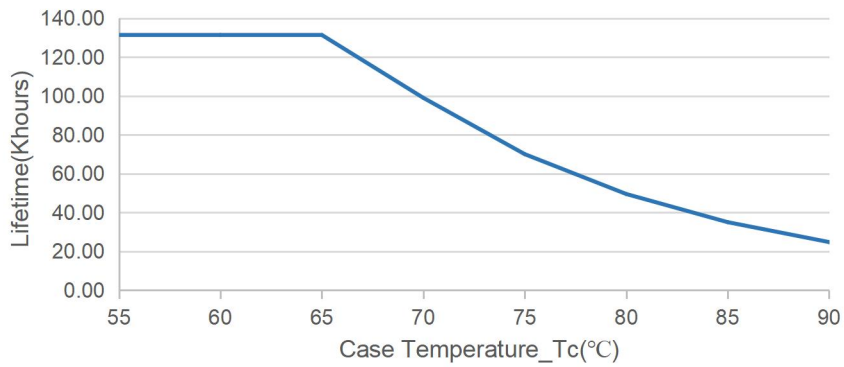


Efficiency vs. Load ($I_o=5.71A$)

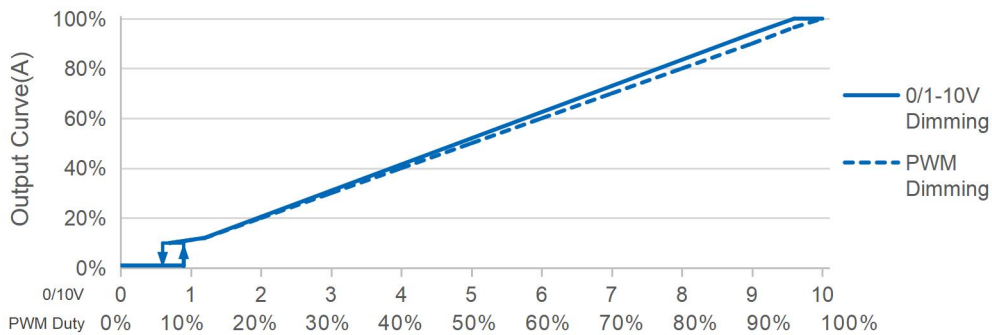


Efficiency vs. Load (Io=7.50A)**PF vs. Load****THD vs. Load****Output Power vs. Ambient Temperature**

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.

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%).

U-I Curve

Model: X6N-320M056

Set Current: I Max 7500 mA, I Set 5000 mA

Select Dimming Mode: ☒ Signal Dimming, ☐ Timer Dimming

Signal Dimming: ☒ Cut-off Setup, ☒ Cut-off, Off Value 8%, On Value 10%, ☒ Set Dimmer Voltage 0~10V, ☒ Set Reverse Dimming, ☐ Enable reverse dimming, ☒ Signal Line Max.Voltage

Set Min Current: Min Value 10%, ☒ OTP Setup, OTP: 91°C, ☒ Set linear compensation, ☐ Enable linear compensation, ☒ Set checking DVCC, ☒ Enable checking DVCC

SoftStart

☒ EN_SoftStart

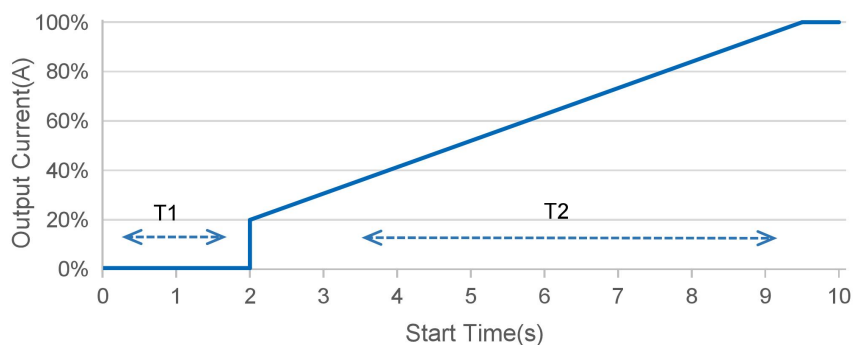
Time 60 s

Out 20 %

The T2 Time can be set here

Dim level %

Dimming curve (V)

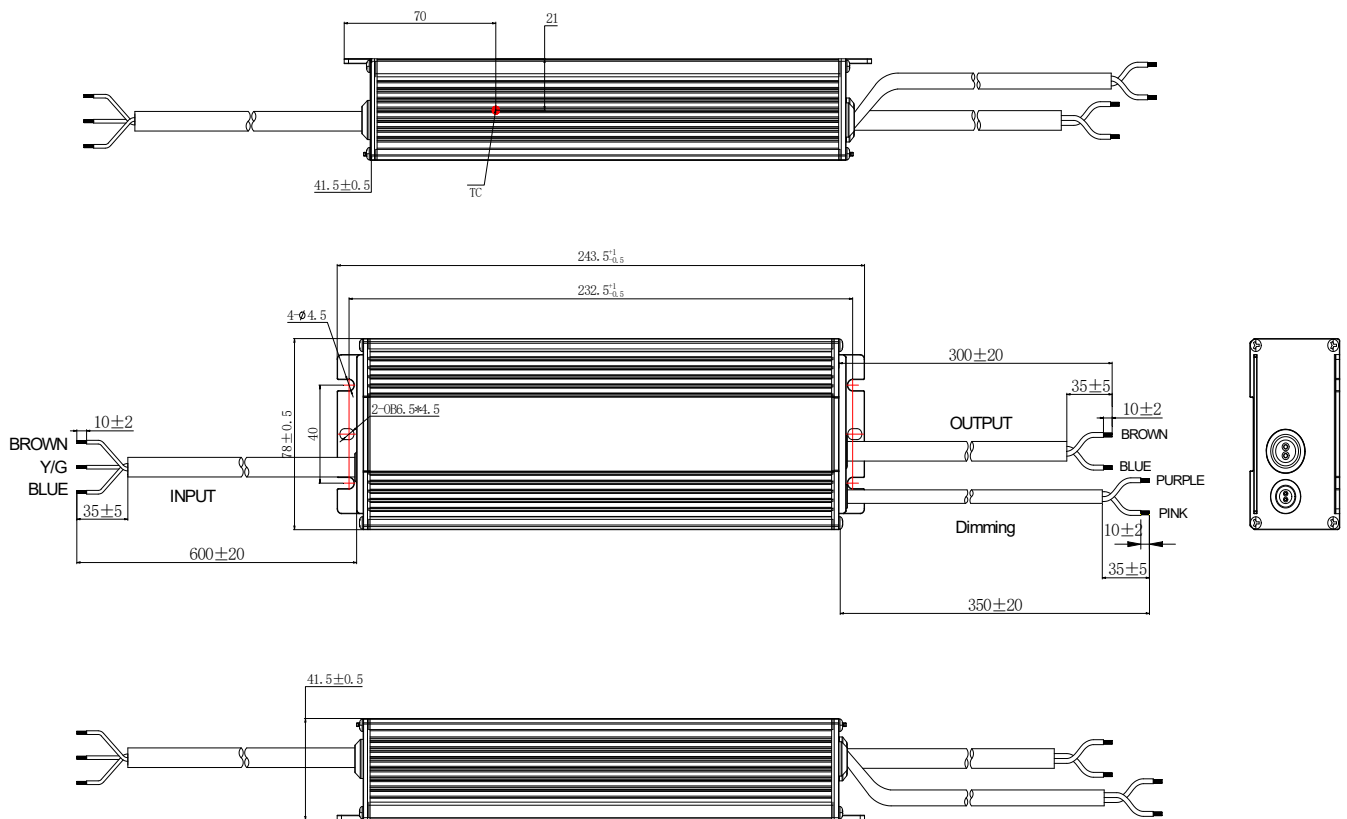


Soft-start Curve

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 $\pm 0.5s$).

Mechanical Outline



Specification

Input	CCC+VDE+SAA H05RN-F 3*1.0 mm ² L=600±20mm	CCC/CE/SAA
Output	CCC+VDE+SAA H07RN-F 2*1.5 mm ² L=300±20mm	CCC/CE/SAA
Dimming	UL 2733 2*22AWG L=350±20mm	UL

Label

TBD

Version

A.1	First release	2025-06-08

Specification for Approval

Product Name : 320W LED Driver

Product Model : X6E-320M056-G

Rev : A.1

Address: XiLiSongbai 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 : 320W LED Driver

Product Model : X6E-320M056-G

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: 0755-27657908

E-mail: info@mosopower.com

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

Prepared By	Checked By	Approved By