

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: 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: 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-320M457	176~277	320	228~457	0.70~1.05	0.70	95%	0.95	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	176Vac	230/277Vac	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)	0.93	0.95	-	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%	176-230Vac, 50-60Hz, 70%-100% load
Total Harmonic Distortion (THD)	-	10%	15%	277Vac, 50-60Hz, 70%-100% load
MCB(B16)	-	2	-	230Vac; 100%load

Output Specifications

Parameter	Min	Typ.	Max	Notes
Output Voltage Range	228Vdc	-	457Vdc	The full power cannot be lower than 305Vdc
Open Circuit Voltage	-	-	490Vdc	
Output Current Range	0.105A	-	1.05A	Adjustable Output Current with programmer
Full Power Current Range	0.70A	-	1.05A	
Current Accuracy	-5% _{I_{set}}	-	+5% _{I_{set}}	I _{set} is set to the full power range
Total Output Current Ripple (pk-pk)	-	-	15%	20MHz BW full load & LED load the LED load ripple is slightly different for different LEDs@25°C ambient temperature
Startup Overshoot Current	-	-	10%	220-240Vac full load condition, LED load, @ 25°C ambient temperature
Line Regulation	-1%	-	+1%	25°C±10°C ambient temperature, input changes from 176Vac to 277Vac
Load Regulation	-3%	-	+3%	Load varies from 70% to 100% with 230Vac Input at 25°C ±10°C ambient temperature
Turn-on Delay Time	-	-	60s	240Vac, 100% load, 25°C ±10°C ambient temperature

General Specifications

parameter	Min	Typ.	Max	Notes
Efficiency@230Vac Io=0.70A Io=1.05A	92.5% 92.0%	95.0% 94.5%	-	100% load, 25°C±10°C ambient temperature
Efficiency@277Vac Io=0.70A Io=1.05A	92.5% 92.5%	95.0% 95.0%		100% load, 25°C±10°C ambient temperature
Mean Time Between Failure	-	200Khours	-	25°C±10°C ambient temperature, 230Vac, 80% load condition (MIL-HDBK-217/SR-332)
Lifetime	-	56Khours	-	230Vac& 100% load, Tc 75°C, reference lifetime vs. case temperature curve
Operating Temperature Ta	-60°C	-	+45°C	176~200Vac, Output Power vs. Ambient Temperature curve
Operating Temperature Ta	-60°C	-	+55°C	200~277Vac, 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	90Vac	Turn off the output or hiccup when the input voltage falls below protection voltage.
Over Temperature Protection Tc	-	90°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)	243.5*78*41.5mm			
Net Weight	1440±100g/PCS			
Package (L*W*H)	L448xW308xH130mm 6PCS/Ctn, Gross Weight: 9.2Kg			

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	-0.9	1.0V	
Turn-off Voltage	0.4V	-0.6	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)	-	1720Vac	-	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		

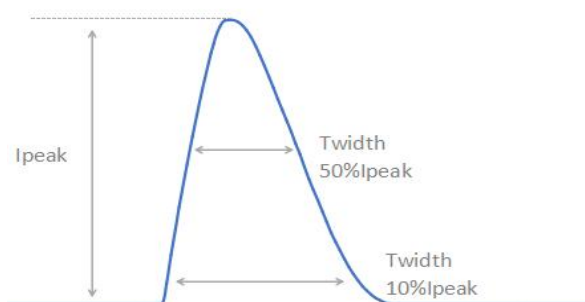
EMC Compliance

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

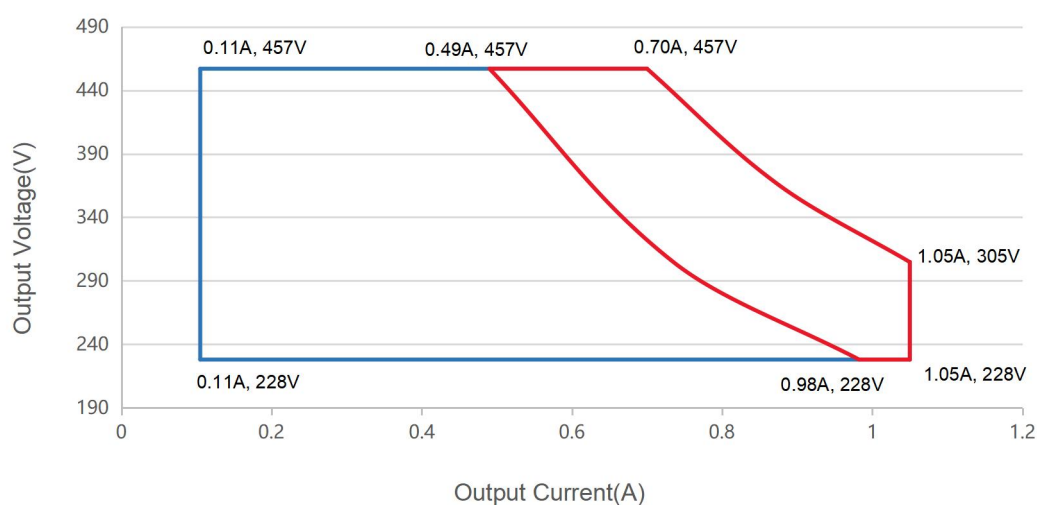
Our products comply with reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU.

Inrush Current



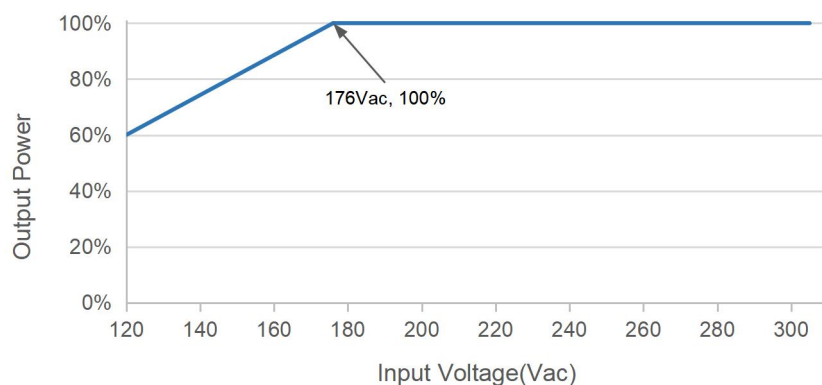
Vin	Ipeak	T(@10% of Ipeak)	T(@50% of Ipeak)
230Vac	89A	588uS	208uS

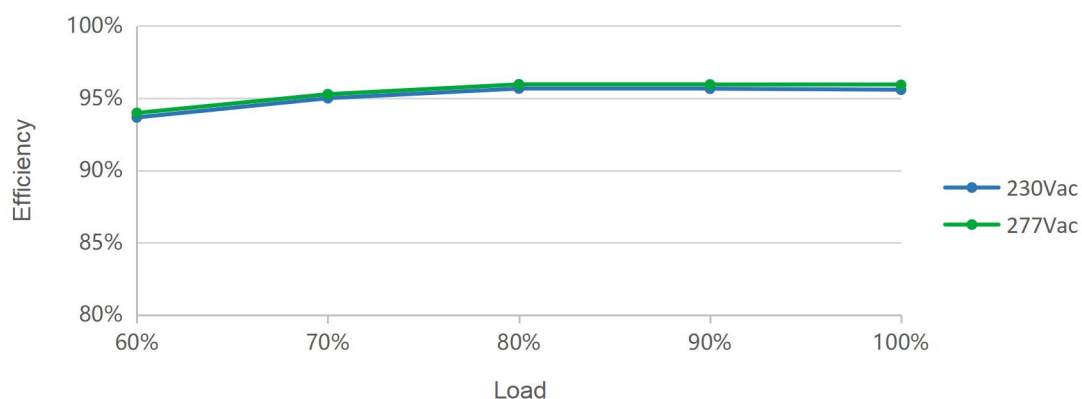
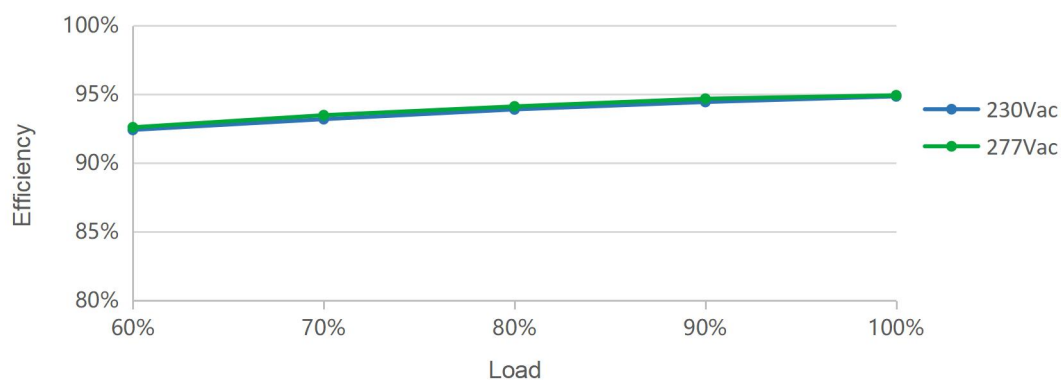
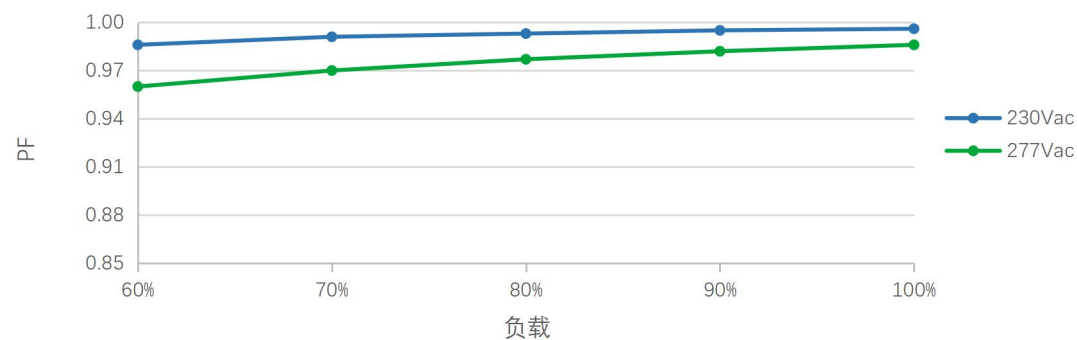
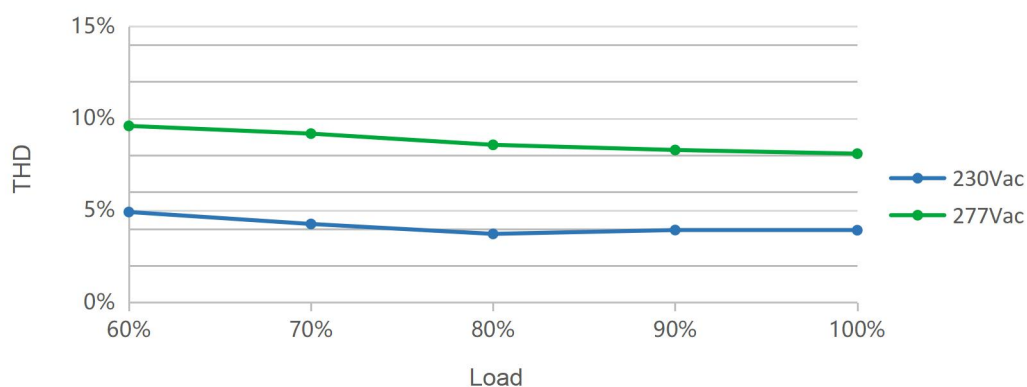
Output Voltage vs. Output Current

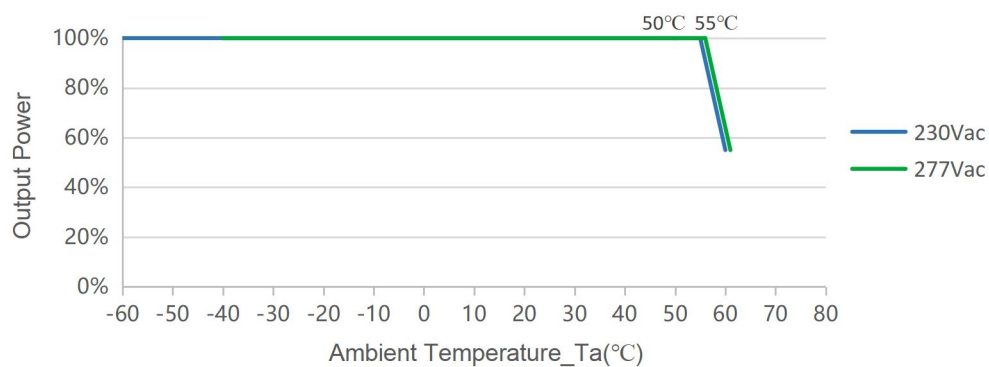
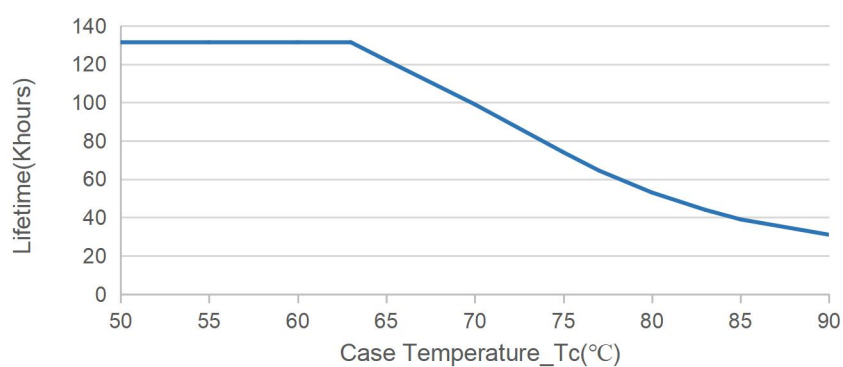
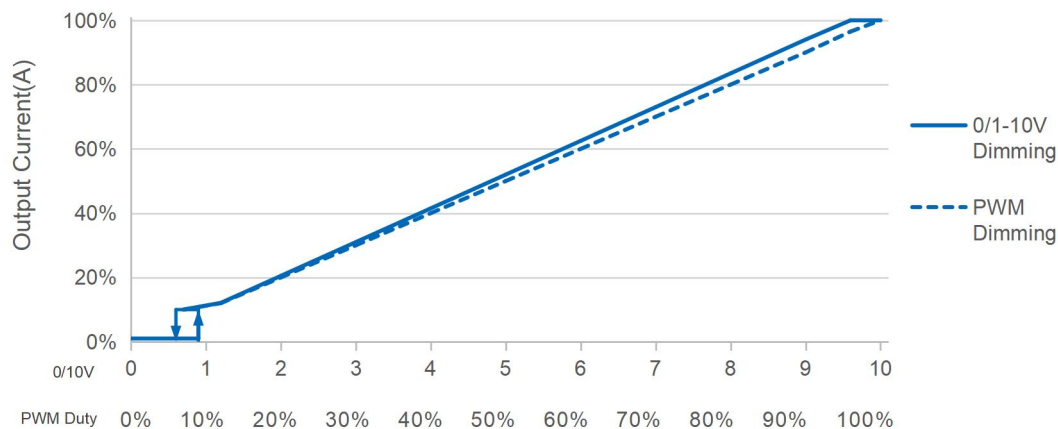


Red curve: good performance area

Output Power vs. Input Voltage



Efficient vs. Load ($I_o=0.70A$)**Efficient vs. Load ($I_o=1.05A$)****PF vs. Load****THD vs. Load**

Output Power vs. Ambient Temperature**Lifetime vs. Case Temperature****0-10V/PWM Dimming**

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%).

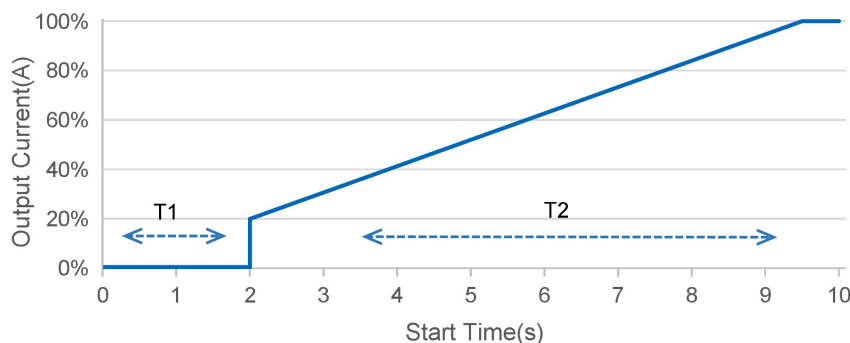
The screenshot shows the MOSO software interface for the X6N-320M056 driver. The top section displays the U-I Curve with a blue ProgramArea, a red ConstantPower line, and a dashed PerformanceArea. The y-axis is Voltage(V) from 0 to 60, and the x-axis is Current(%) from 0 to 96. The ProgramArea is defined by Vmax=56V, Vmin=28V, and (56V max, 5000mA). The ConstantPower line is at 56V max, 5000mA. The PerformanceArea is a dashed rectangle from 0 to 96% current and 0 to 56V voltage.

The right side of the interface shows the Model dropdown set to X6N-320M056. Below it, the Set Current section has I Max set to 7500 mA and I Set set to 5000 mA. The Select Dimming Mode section has Signal Dimming checked and Timer Dimming unchecked. Buttons for Read, Default, Import, Save, Programming, and Download to offline programmer are visible.

The bottom section shows the Signal Dimming settings. The Cut-off Setup section has Cut-off checked, Off Value set to 8%, and On Value set to 10%. The Set Dimmer Voltage section has a dropdown set to 0~10V. The Set Reverse Dimming section has Enable reverse dimming unchecked and Signal Line Max.Voltage checked. The Set Min Current section has Min Value set to 10%. The OTP Setup section has OTP set to 91°C. The Set linear compensation section has Set linear compensation checked and Enable linear compensation unchecked. The Set checking DVCC section has Set checking DVCC checked and Enable checking DVCC checked.

A pop-up window titled "SoftStart" is shown, with EN_SoftStart checked, Time set to 60 s, and Out set to 20%. A blue arrow points from the text "The T2 Time can be set here" to the Time field in the SoftStart window.

The Dimming curve (V) graph shows Dim level % on the y-axis (0 to 100%) and Voltage (V) on the x-axis (0.8 to 10). The curve starts at 0.8V, rises linearly to 100% at 10V, and then remains constant at 100%.

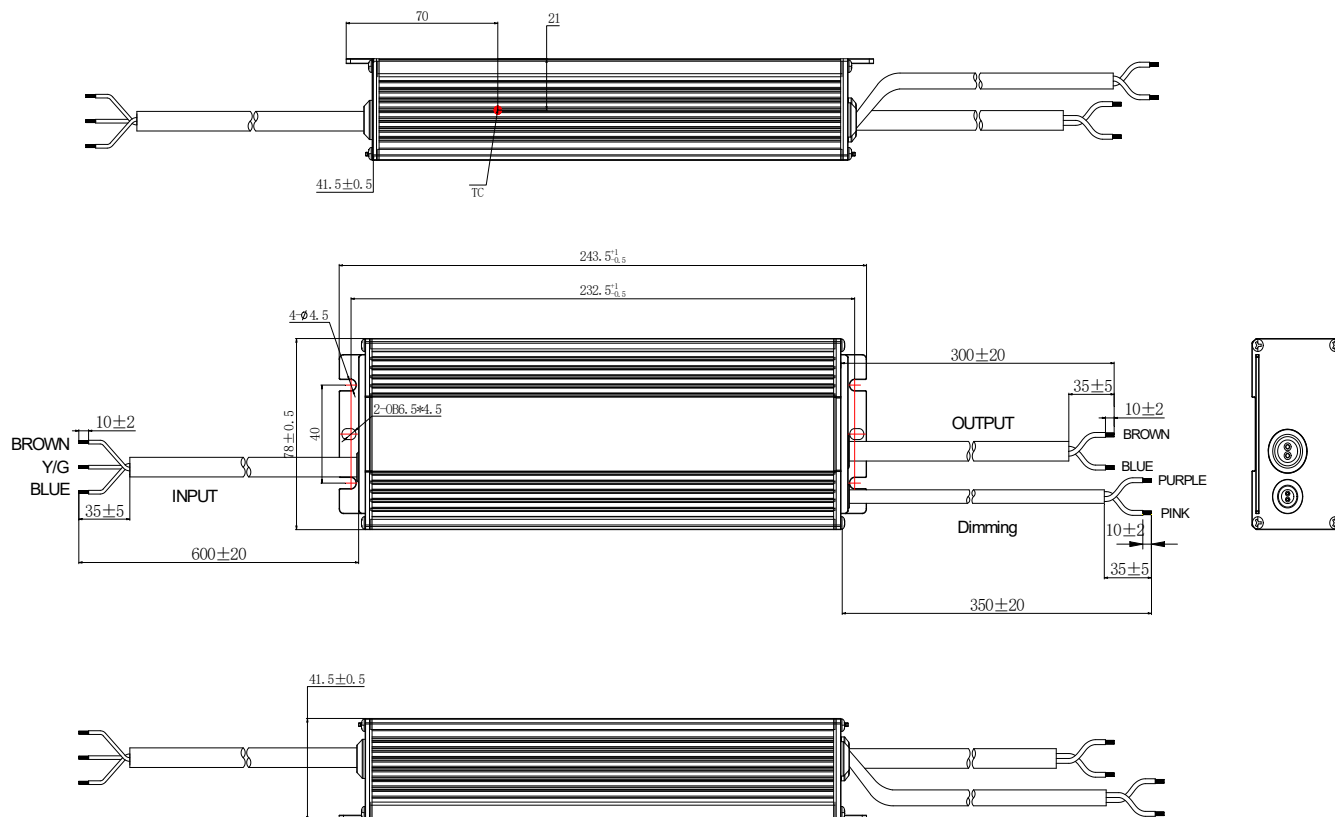


Soft-start Curve

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*1.0 mm ² L=300±20mm	CCC/CE/SAA
Dimming	UL2733 22AWG*2C L=350 ± 20mm	UL

Label

TBD

Version

A.1	First release	2026-06-08

Specification for Approval

Product Name: 320W LED Driver

Product Model: X6E-320M457-G

Rev: C.3

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

Prepared By	Checked By	Approved By

Specification for Approval

Product Name: 320W LED Driver

Product Model: X6E-320M457-G

Rev: C.3

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