Description

The X7S series is outdoor programmable LED driver that operates in constant current with high PF value for Class I and Class II Luminaires. 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: 90~305Vac;
- Self-adaption Constant power design
- Isolated constant current design；
- Suitable for luminaires with protection Class I and II;
- 0-10V/ PWM/timer dimming, Dim-to-off;
- Adjustable output current with programmer;
- High surge protection: 6KV line-line, 10KV line-earth(Class I);
- Protections: Input UVP, Output SCP / OVP / OTP;
- IP67 design for indoor and outdoor applications;
- Suitable for dry / damp / wet locations;
- 5 years warranty.

Application

Road and street 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.)
X7S-320M056	120~277	320	28-56	5.71~7.50	5.0	94.0%	0.98	6%

NOTES:

[1]. M means 0-10V/ PWM/Timer 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	120/230/277Vac	305Vac	
Input Frequency AC	47Hz	50/60Hz	63Hz	
Max Input Current	-	-	4.2A	120Vac & 100%Load
Max Input Power	-	-	400W	120Vac & 100%Load
Leakage Current	-	-	0.70mA	IEC60598-1;240Vac/60Hz.
Inrush Current	-	-	4.5A^2s	230Vac, 100% load
Power Factor (PF)	0.96	0.98	-	120Vac，50-60Hz，60%-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%	120-230Vac，50-60Hz，60%-100% load
Total Harmonic Distortion (THD)	-	10%	15%	277Vac，50-60Hz，60%-100% load
MCB(B16)	-	2	-	230Vac；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)	-	-	10%	20MHz BW full load＆LED load the LED load ripple is slightly different for different LEDs，25℃ ambient temperature
Startup Overshoot Current	-	-	10%	220-240Vac full load condition，LED load，25℃ ambient temperature
Line Regulation	-1%	-	+1%	25℃±10℃ambient temperature, input changes from 200Vac to 264Vac
Load Regulation	-3%	-	+3%	Load varies from 60% to 100% with 230Vac Input at 25℃±10℃ ambient temperature
Turn-on Delay Time	-	-	2.0s	240Vac,100% load

General Specifications

Parameter	Min	Typ.	Max	Notes
Efficiency@120Vac Io=5.71A Io=7.50A	 90.2% 89.7%	 92.2% 91.7%		100% load，25℃ ambient temperature
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	-40℃	-	+45℃	100~200Vac, Output Power vs. Ambient Temperature curve
Operating Temperature Ta	-40℃	-	+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	When the input voltage is lower than the protection voltage, the driver will turn off automatically. When the input voltage exceeds the recovery voltage, the driver will restart automatically.
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±100g/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	0.5V	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%	-	11%	
Turn-Off Duty Cycle	5%	-	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 Specification

Parameter	Min	Typ. (Class I/II)	Max	Notes
Dielectric Strength（Input-Output)	-	3750Vac	-	60s，Current not exceeding 5mA
Dielectric Strength (Input-Ground/Case)	-	1600/3200Vac	-	60s，Current not exceeding 5mA
Dielectric Strength (Output-Ground/Case)	-	1500Vac	-	60s，Current not exceeding 5mA
Dielectric Strength（Input-Dimming)	-	3750Vac	-	60s，Current not exceeding 5mA
Dielectric Strength (Dimming-Ground/Case)	-	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/Case, Output-PE/Case, 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/NZS IEC 61347.2.13		
SAA	AS/NZS 61347.1		

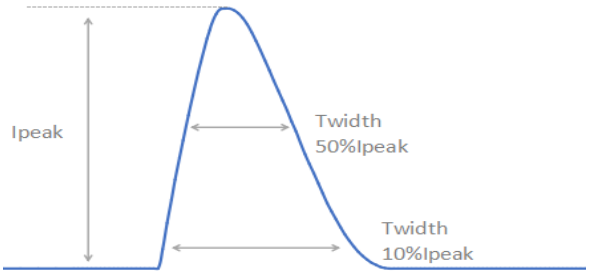
EMC Compliance

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		
Ringing Wave			

RoHS

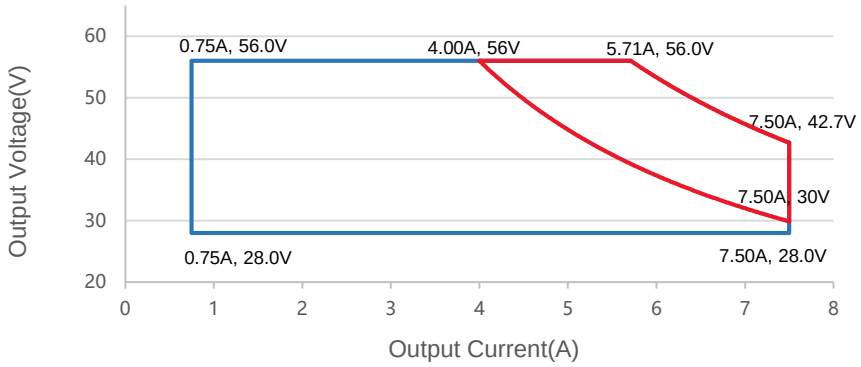
Our products comply with reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU.

Inrush Current



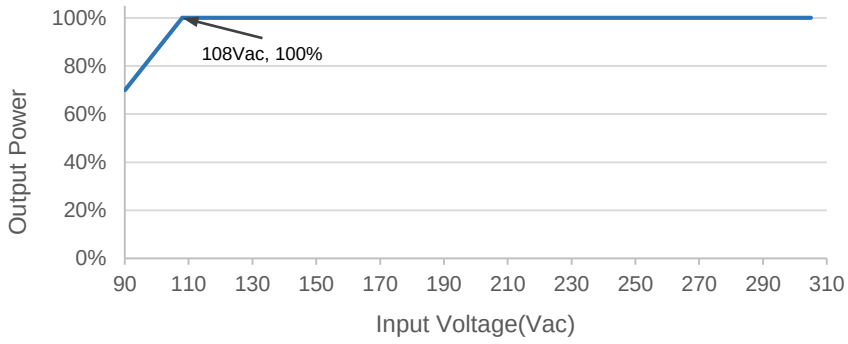
Vin	Ipeak	T(@10% of Ipeak)	T(@50% of Ipeak)
120Vac	57.5A	948μs	364μs
230Vac	114A	916μs	432μs
277Vac	152A	852μs	408μs

Output Voltage vs. Output Current

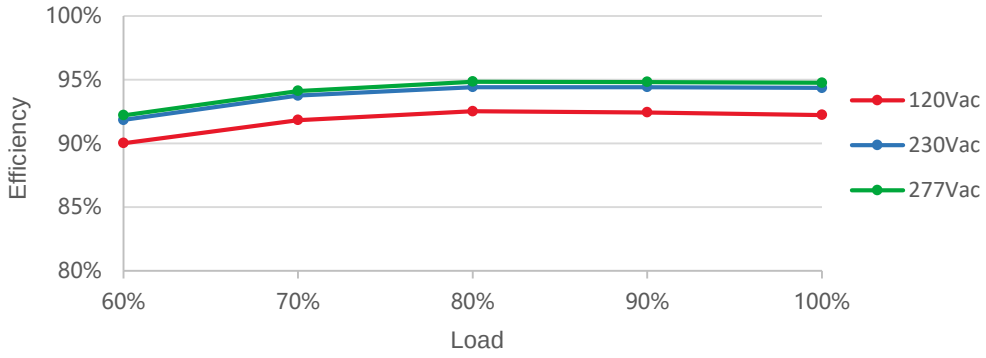


Red curve: good performance area

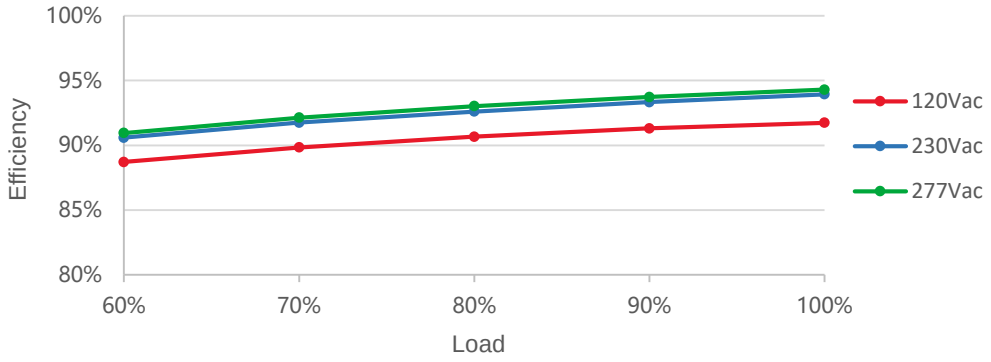
Output Power vs. Input Voltage



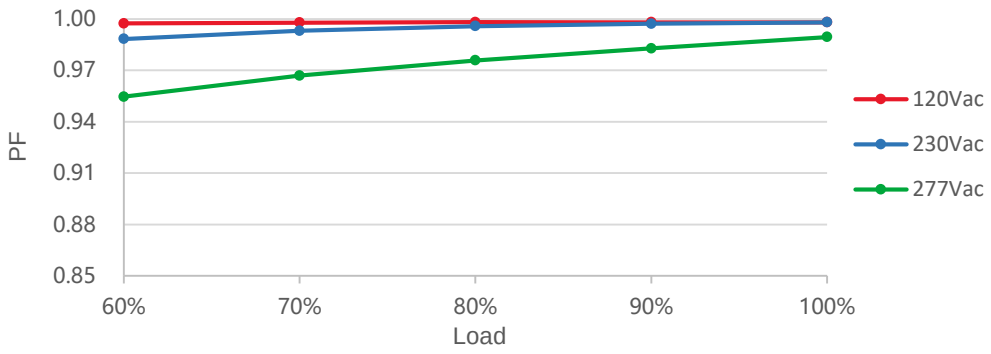
Efficiency vs. Load (Io=5.71A)



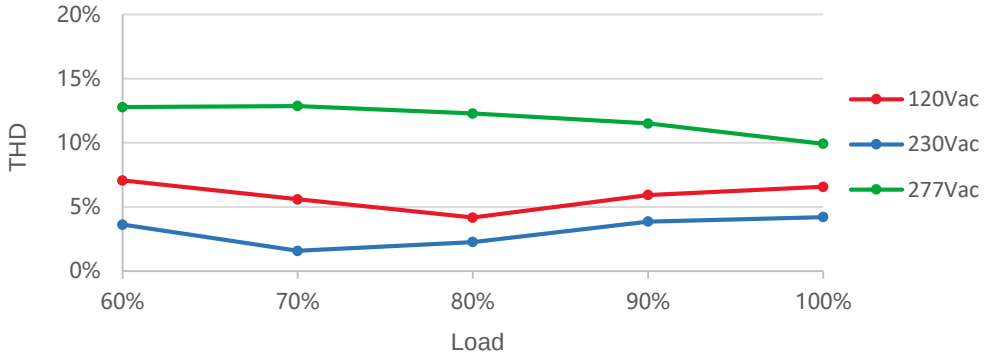
Efficiency vs. Load (Io=7.50A)



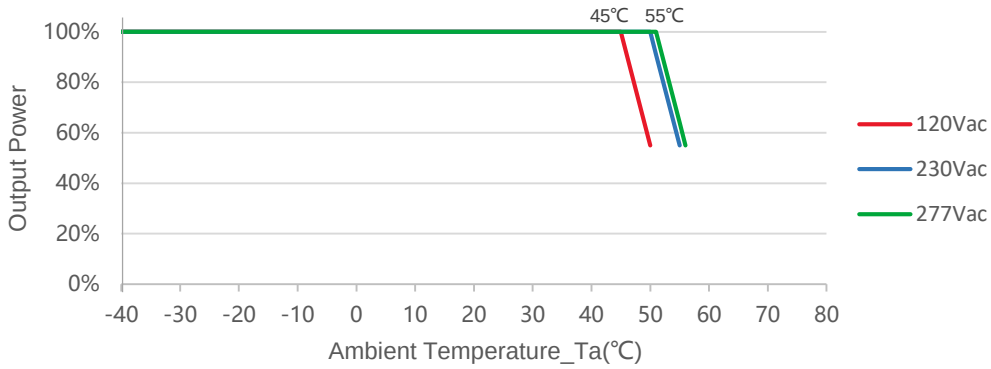
PF vs. Load



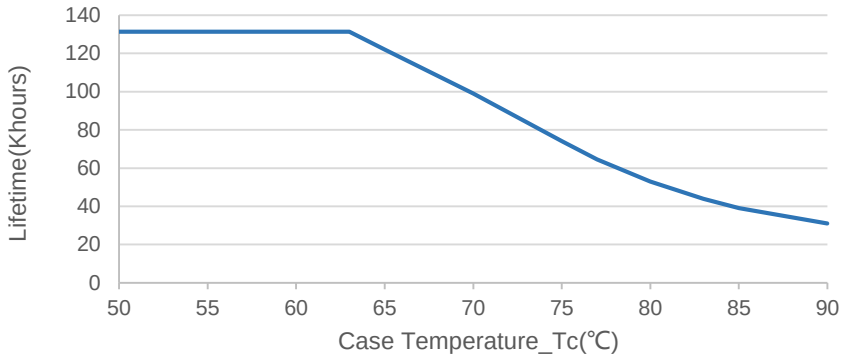
THD vs. Load



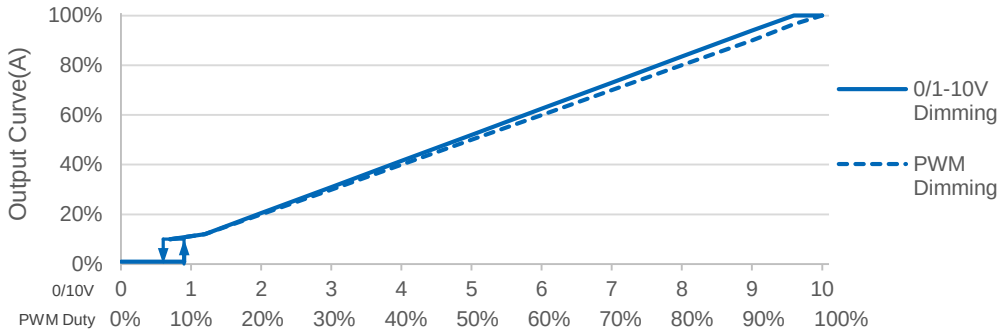
Output Power vs. Ambient Temperature



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.

Off-line Programming

User-friendly connection of programming without necessary to power on device(suitable for X6, XCP, X6I, X6E, X7S Series).

Programming mode 1

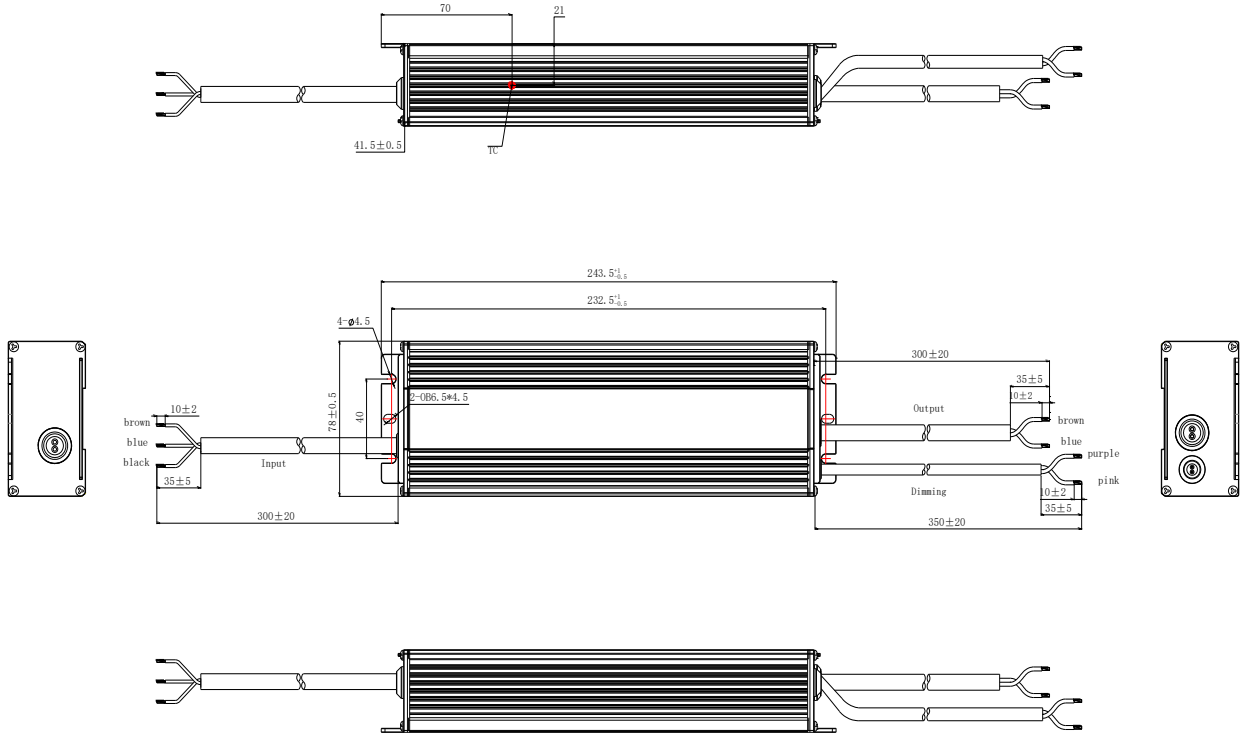
Visual Intelligent Programming

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.

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

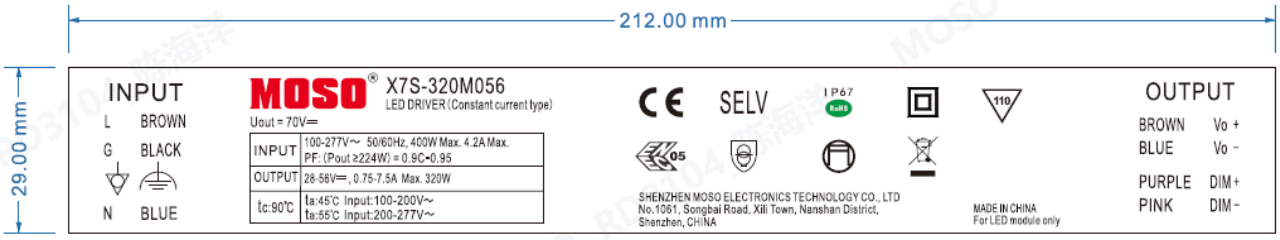


Notes: EQUI pin connects to ground wire and metal housing of luminaries for Class I applications, and to metal housing for Class II applications.

Specification

Input	CCC+VDE H05RN-F 3*1.0 mm² L=300±20mm	CCC/CE
Output	CCC+VDE HO7RN-F 2*1.5 mm² L=300±20mm	CCC/CE
Dimming	UL2733 2*22AWG L=350±20mm	UL

Label



Version

A.1	First release	2026-02-27

Specification for Approval

Product Name：320W LED Driver

Product Model：X7S-320M056

Rev：A.1

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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: X7S-320M056

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