

Description

The X7L series is an outdoor LED constant current driver with a very high power factor. This series is designed for low power street lights and tunnel lights. It supports 0-10V/PWM dimming and Dim-to-off. The high efficiency and simple metal housing design provides excellent heat dissipation, which effectively improves reliability and extends product life. To ensure trouble-free operation, the X7L series has lightning protection, output over voltage, short circuit to ensure low failure rate.



Product Features

- Universal input voltage: 90~305Vac;
- Isolate constant power design;
- Control solutions: 0~10Vdc / PWM;
- Potentiometer regulated current;
- Protections: SCP / OVP;
- surge protection: 4KV line-line, 6KV line-earth;
- IP67 design outdoor applications;
- Suitable for dry / damp / wet locations;
- 5 years warranty;

Application

Road and street lighting
 Industrial 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.)
X7-060M050L	100~240/277	60	28~50	1.20~1.80	1.5	89%	0.97	10%

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	90Vac	-	305Vac	Low voltage 108Vac derating and ambient temperature reduction
Rated Input Voltage Range	100Vac	120/230Vac	277Vac	Refer to Output Power vs. Input Voltage curve
Input Frequency AC	47Hz	50/60Hz	63Hz	
Max Input Current	-	-	0.8A	90Vac & 100% load
Max Input Power	-	-	70W	90Vac & 100% load
Leakage Current	-	-	0.70mA	IEC 60598-1; 240Vac/60Hz
Leakage Current	-	-	0.75mA	UL 8750; 277Vac/60Hz
Inrush Current	-	-	60A	230Vac, 100% load
Power Factor (PF)	0.94	0.97	-	100-240Vac, 50-60Hz, 75%-100% load
Power Factor (PF)	0.90	0.92	-	277Vac, 50-60Hz, 75%-100% load
Total Harmonic Distortion (THD)	-	10%	15%	100-240Vac, 50-60Hz, 70%-100% load
Total Harmonic Distortion (THD)	-	15%	20%	277Vac, 50-60Hz, 70%-100% load
MCB(B16)	-	10	-	277Vac; 100%load
MCB(B16)	-	12	-	240Vac; 100%load

Output Specifications

Parameter	Min	Typ.	Max	Notes
Output Voltage Range	28Vdc	-	50Vdc	
Open Circuit Voltage	-	-	65Vdc	
Full Power Current Range	1.20A	-	1.80A	Adjustable output current with potentiometer
Current Accuracy	-5% I_{set}	-	+5% I_{set}	25°C±10°C Ambient temperature
Total Output Current Ripple (pk-pk)	-	80%	120%	25°C±10°C Ambient temperature 20MHz BW full load & LED load the LED load ripple is slightly different for different leds
Startup Overshoot Current	-	-	10%	220-240Vac full load condition, LED load
Line Regulation	-3%	-	+3%	25°C±10°C ambient temperature, input changes from 100Vac to 277Vac
Load Regulation	-5%	-	+5%	Load varies from 70% to 100% with 230Vac Input at 25°C±10°C ambient temperature
Turn-on Delay Time	-	-	1.0s	100-277Vac, 100% load

General Specifications

Parameter	Min	Typ.	Max	Notes
Efficiency@230Vac I _o =1.20A I _o =1.80A	88% 87%	90% 89%	-	100% load, 25°C ambient temperature
Mean Time Between Failure	-	200Khours	-	25°C±10°C ambient temperature, 230Vac, 80% load condition (MIL-HDBK-217/SR-332)
Lifetime	-	50Khours	-	230Vac & 100% load, T _c 75°C, refer to lifetime vs. case temperature curve
Operating Temperature T _a	-40°C	-	+55°C	Output Power vs. Ambient Temperature curve
Operating T _c for Safety T _{c_s}	-40°C	-	+90°C	
Operating T _c for Warranty T _{c_w}	-40°C	-	+75°C	5-year warranty shell temperature, humidity: 10% to 95% RH
Storage Temperature T _a	-40°C	-	+85°C	Humidity: 5% to 100% RH
Altitude	-60m	-	4000m	
Dimensions (L*W*H)	132.2*55.4*33.5mm			
Net Weight	450±50g/PCS			
Package (L*W*H)	L466*W282*H172mm; 16PCS/Ctn, Gross Weight: 9Kg			

Dimming

Parameter	Min	Typ.	Max	Notes
Absolute Maximum Voltage	-	10V	15V	On the V _{dim} (+) Pin
Source Current on V _{dim} (+) Pin	-	400uA	650uA	
Dimming Range	10% I _{set}	-	100% I _{set}	I _{set} is set to the full power range
Suggest Dimming Input 0-10V	0V	-	10V	
Turn-on Voltage	0.7V	-	1.0V	
Turn-off Voltage	0.4V	-	0.8V	
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%	-	8%	

Notes:

Dimming resolution 1%(PWM), 0.1V(0~10V) ,Recommended dimming range.

Safety Specification

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°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		

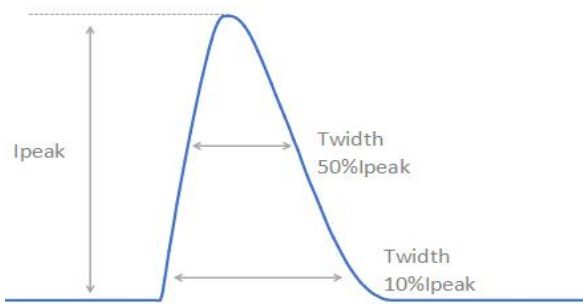
EMC Compliance

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		
Ringing Wave			

RoHS

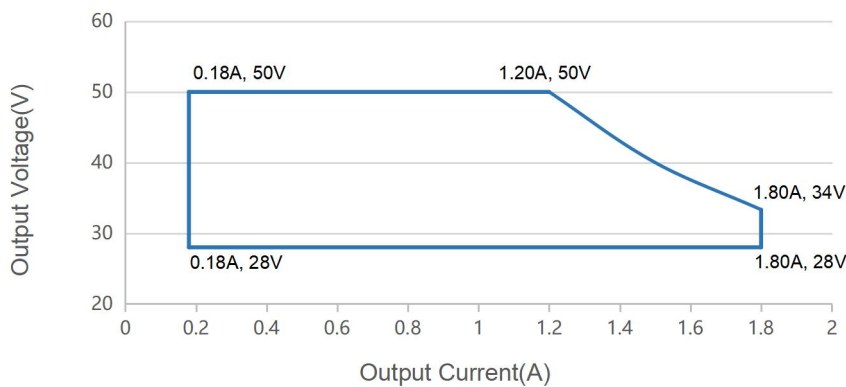
Our products comply with reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU.

Inrush Current

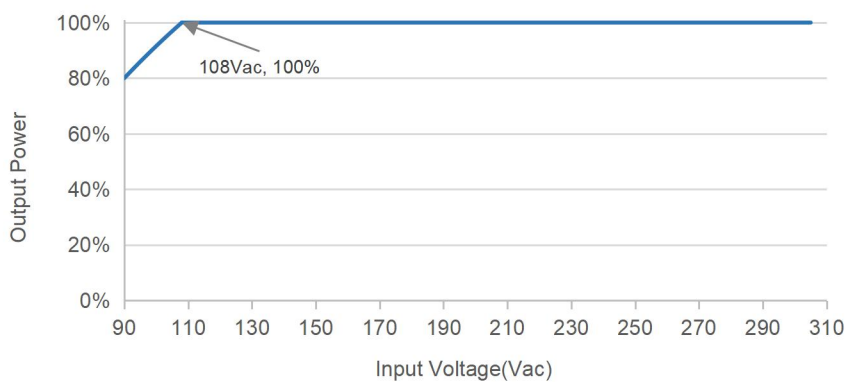


V_{in}	I_{peak}	$T(@10\% \text{ of } I_{peak})$	$T(@50\% \text{ of } I_{peak})$
230Vac	60A	300uS	150uS

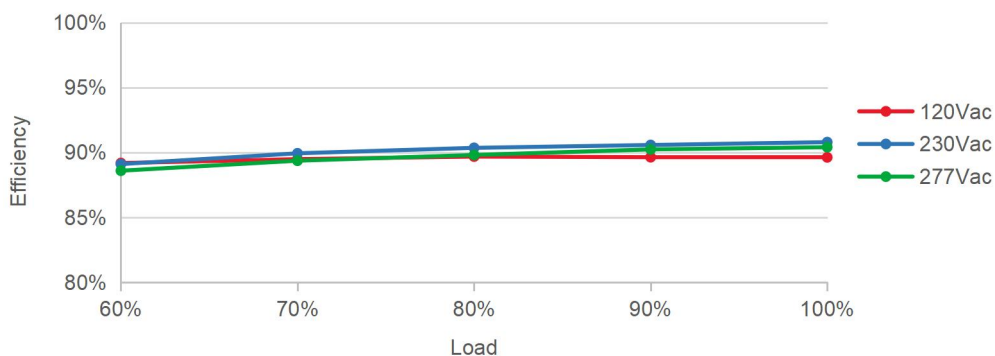
Output Voltage vs. Output Current



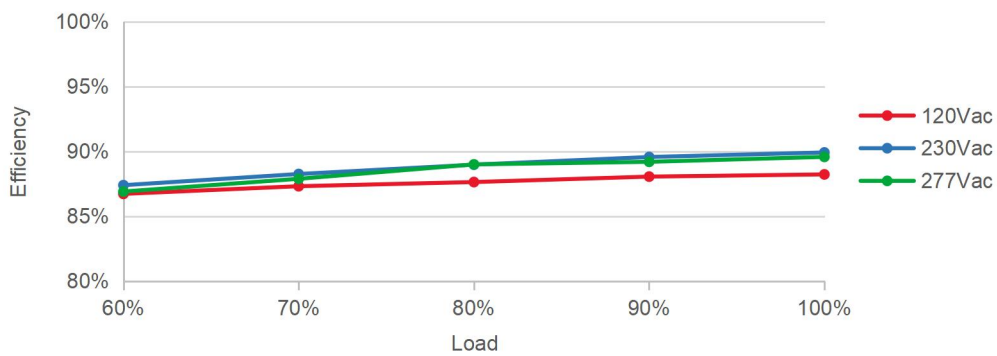
Output Power vs. Input Voltage



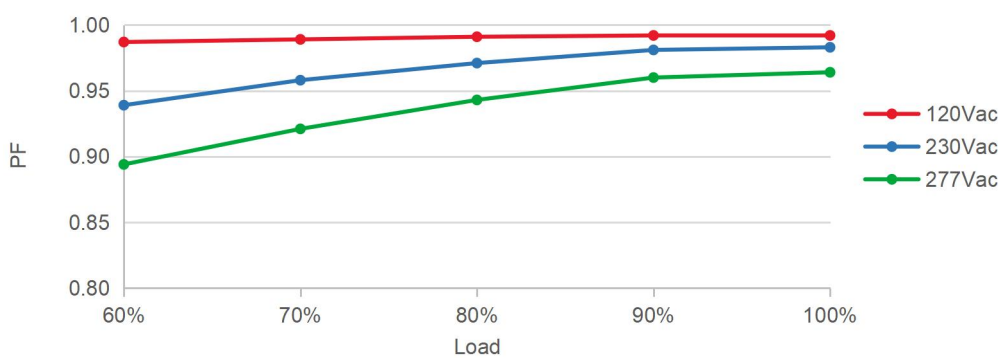
Efficiency vs. Load ($I_o=1.20A$)



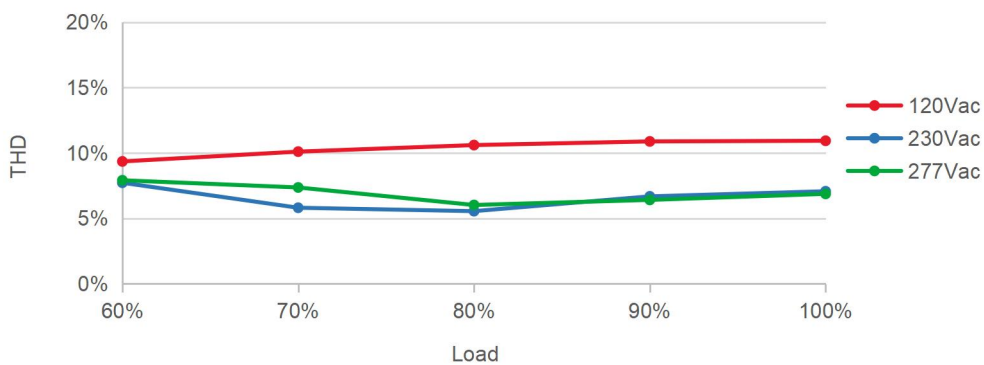
Efficiency vs. Load (I_o=1.80A)



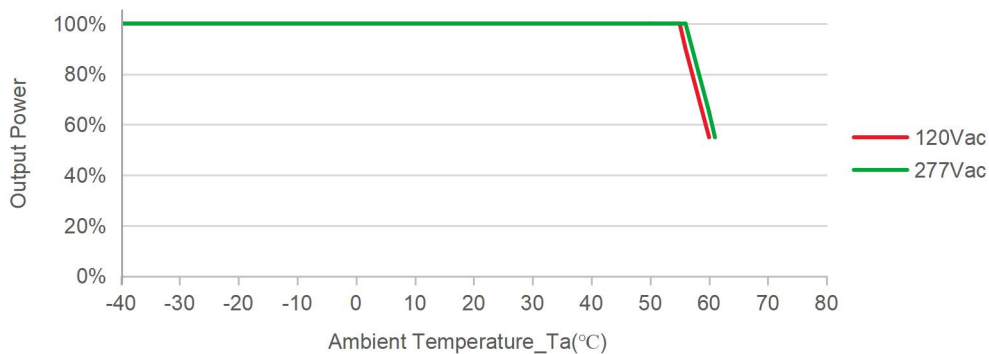
PF vs. Load



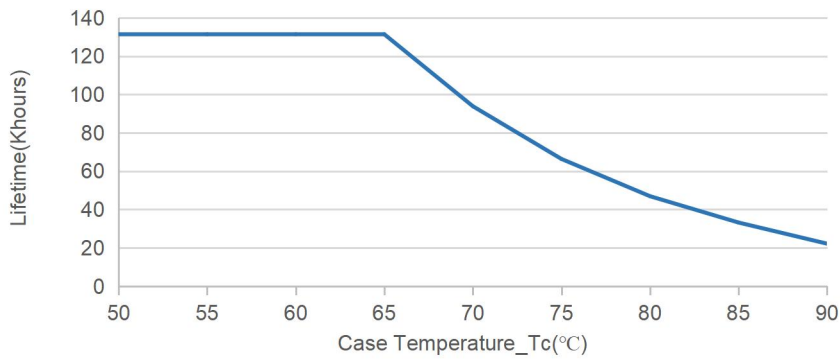
THD vs. Load



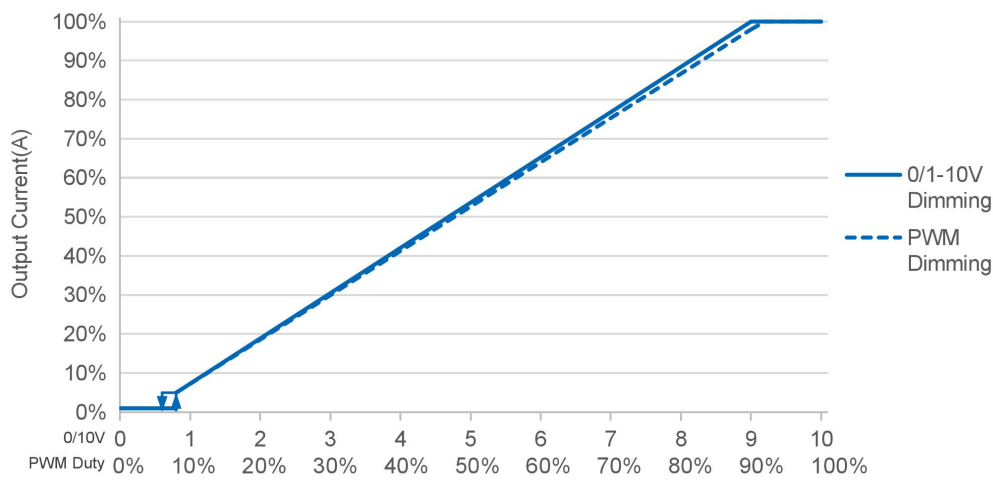
Output Power vs. Ambient Temperature



Lifetime vs. Case Temperature

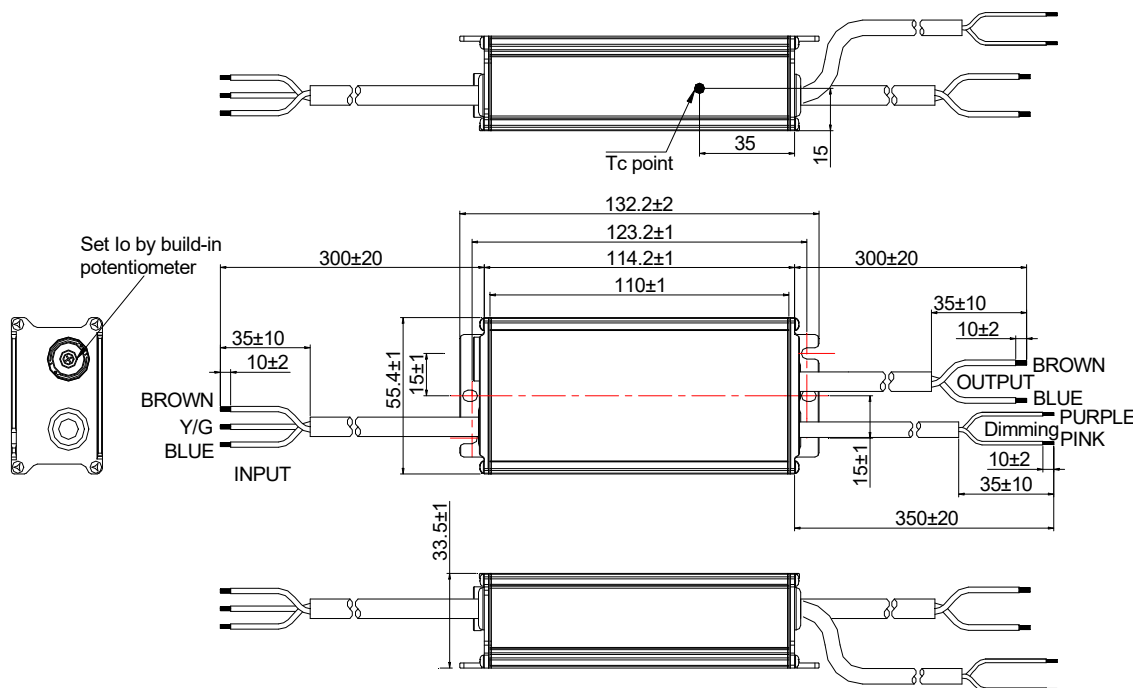


0-10V/PWM Dimming



Notes: Afterglow may appear after switching off dimming due to the difference of lamp panel. Thus, lighting fixture grounding test is suggested.

Mechanical Outline



Specification

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

Label

INPUT

(+) I_o ADJ

L (BROWN 棕)

G (Y/G 黄/绿)

(⊥)

N (BLUE 蓝)

MOSO[®] X7-060M050L

Constant current type LED DRIVER
LED 恒流控制装置

OUTPUT

(BROWN 棕) Vo +

(BLUE 蓝) Vo -

(PURPLE 紫) DIM"+"

(PINK 粉) DIM"-"

INPUT (输入)	100-240V~ 50/60Hz, 0.8A Max. PF: 0.95, 70W
OUTPUT (输出)	28-50V ^{DC} 0.18-1.80A U _{out} Max.(最大电压): 65V ^{DC} Max.Power(最大功率): 60W
t _c : 90°C	t _a : 55°C

CCC

SELV

RoHS

CE

IP67

RoHS

MADE IN CHINA For LED module only

SHENZHEN MOSO ELECTRONICS TECHNOLOGY CO., LTD
No.1061, Songbai Road, Xili Town, Nanshan District, Shenzhen, CHINA

Note:

Nameplate is laser engraved.

Version

A.2	First release	2023-07-13
B.2	更新文件名	2023-09-05

Specification for Approval

Product Name: 60W LED Driver

Product Model: X7-060M050L

Rev: B.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: 60W LED Driver

Product Model: X7-060M050L

Rev: B.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

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Prepared By	Checked By	Approved By