Specification for Approval

Product Name:	60WConstant Current Driver
Product Model:	X6-060M052 ☐
	X6-060V052 ☑
Rev:	B.2

Address: XiLiSongbai Road 1061, Nanshan District, Shenzhen City, Guangdong Province, P.R.China
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Prepared By	Checked By	Approved By

Specification for Approval

Produce Name： 60W Constant Current Driver

Product Model： X6-060M052 ☐
X6-060V052 ☑

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.		

Prepared By	Checked By	Approved By

REVISON HISTORY

Version	Description Of Change		Date	Notes
	Before	After		
A.1	—	Original Release	2023-08-17	
B.2		ECL202311018	2023-11-13	林丽丽

Product Feature:

- Input voltage range: 90~305Vac;
- Constant current design;
- Output current adjustable by Built-in potentiometer;
- THD<10%;
- 3-in-1 dimmable: 0~10Vdc, PWM, Resistor;
- Output and Dimming Signal Isolating, Dim to off;
- Surge protection:4KV line-line, 6KV line-earth;
- Protections: OVP, SCP,OTP;
- IP67 design for indoor and outdoor applications;
- Suitable for dry / damp / wet locations;
- 5 years warranty.

Application

- Suitable for LED roadway lighting, plant lighting, industrial lighting, landscape lighting, etc.

DESCRIPTION

The X6-60W is a 60W, constant-current, IP67 LED driver that operates from 90-305Vac input with excellent power factor and low THD. It is created for industrial lights, tunnel and street lights. The high efficiency of these drivers and compact metal case enable them to run cooler, significantly improving reliability and extending product life. To ensure trouble-free operation, protection is provided against input surge, output over voltage, over temperature and short circuit protection.

Models

Model Number	Input voltage range(Vac)	Max Output Power（W）	Output Voltage Range (Vdc)	Output current adjust range(A)	Default output current (A)	Typical Efficiency	Typical THD	Typical PF	
								120Vac	230Vac
X6-060Y052	90-305	60	28-52	0.67-1.34	1.20	89%	5%	0.99	0.97

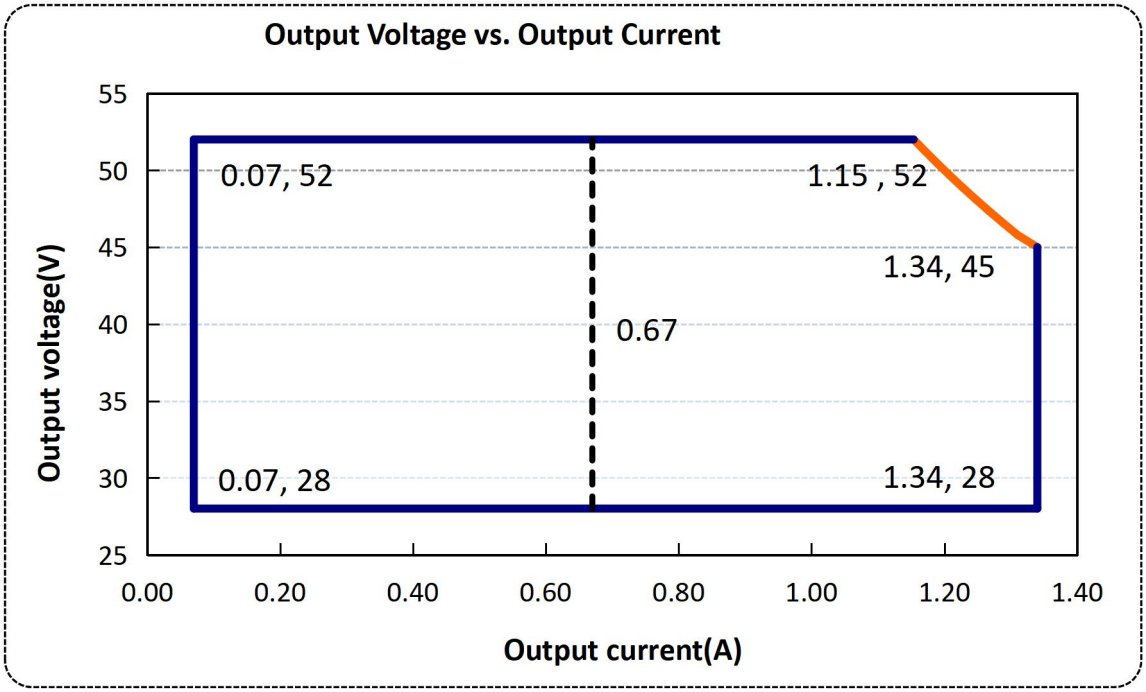
Notes:

[1]Y=M means 0-10V/PWM dimming. Y=V means non-dimmable, adjustable output current potentiometer.,

[2]Remark: All specifications are measured at 25℃ ambient temperature, input voltage 230Vac, and the typical value tested by full load, if no specific note.

OPERATING AREA I-V

X6-060Y052



Notes:

1.The drivers are not allowed to work in over-load condition, otherwise warranty will expire.

2. Y = V for the region to the right of the dotted line , Y = M for the region containing the solid line.

INPUT SPECIFICATIONS

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	90Vac	100-277Vac	305Vac	Please refer to the derating curve
Input Frequency	47Hz	50/60	63Hz	
Leakage Current	-	-	0.70mA	277Vac/60Hz
Input AC Current	-	-	0.80A	120-277Vac with full load
Inrush Current	-	-	0.25A²S	230Vac input，Ta＝25℃（cold start）
Power Factor	0.97	0.99	-	120Vac, 50-60Hz,full load
	0.95	0.97	-	230Vac, 50-60Hz, full load
	0.90	0.92	-	277Vac, 50-60Hz, full load
THD	-	5%	10%	120-240Vac with 70%-100% load
	-	-	15%	277Vac with 70%-100% load

OUTPUT SPECIFICATIONS

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%	-	+5%	
Output Current Set Range(A)	0.67	-	1.34	
Total Output Current Ripple(pk-pk)	-	5%	10%	20MHz BW, full load & LED Load, ripple is different with difference LED load.
Startup Overshoot Current	-	5%	10%	120~277Vac & full load, LED Load
No Load Output Voltage(V) X6-060M052	-	-	80	
Line Regulation	-3%	-	+3%	25℃±10℃ ambient temperature, input voltage changes from 120Vac to 277Vac.
Load Regulation	-8%	-	+8%	25℃±10℃ambient temperature, 230Vacinput, load changes from 60% to 100%.
Turn-on Delay Time	-	-	1S	120Vac,100% load
	-	-	0.5S	230Vac,100% load
Standby Power(W)	-	-	0.5W	230Vac@50Hz

GENERAL SPECIFICATIONS

Parameter		Min.	Typ.	Max.	Notes
Efficiency @120Vac X6-060Y052		86%	88%		Measured at full load and 25℃ambient temperature
Efficiency @230Vac X6-060Y052		87%	89%		Measured at full load and 25℃ambient temperature
Efficiency @277Vac X6-060Y052		87%	89%		Measured at full load and 25℃ambient temperature
Dielectric Strength	Input-Output	-	3750Vac	-	10mA/60S
	Input-PE	-	1600Vac	-	
	Output- PE	-	1600Vac	-	
Grounding Resistance		-	-	0.1Ω	25A/60S
Insulation Resistance		10MΩ	-	-	Input-Output, Input-PE, Output-PE, 500Vdc/60S/25℃/70%RH
MTBF		-	200000 Hours	-	230Vac,80% load (MIL-HDBK-217F)
Lifetime		-	50000Hours	-	230Vac&100% load,75℃case temperature, refer to lifetime VS Tc curve for details
Operating Case Temperature for Safety Tc_s		-40℃	-	+85℃	
Operating Case Temperature for Warranty Tc_w		-40℃	-	+75℃	5 Years Warranty Humidity：10% to 95% RH
Storage Temperature		-40℃	-	+85℃	Humidity：10% to 95% RH

Dimensions (L×W×H)mm	L132mm*65 mm*H34mm	
Net Weight	500±50g/PCS	
Package	L424mm*W354mm*H146mm; 12PCS/Ctn, Gross Weight: 8Kg	

Note: All specifications are tested by Cree XLamp XP-G2 and typical measured at 230Vac and 25℃unless otherwise stated.

SAFETY STANDARDS

Safety Category	Country / Territory	Standards	Whether have Certification
CCC	China	GB19510.1, GB19510.14	√
CE	Europe	EN61347-1, EN61347-2-13	√
		EN62493	√
ENEC		EN62384	√
CB	CB Countries	IEC61347-1, IEC61347-2-13	√
BIS	India	IS 15885(PART 2/SEC 13)	
UL	USA	UL 8750	
CUL	Canada	CSA C22.2 No.250.13	
KC	South Korea	K61347-1, K61347-2-13	
PSE	Japan	J61347-1, J61347-2-13	
SAA	Australia	AS/NZS IEC 61347.2.13	
		AS/NZS 61347.1	

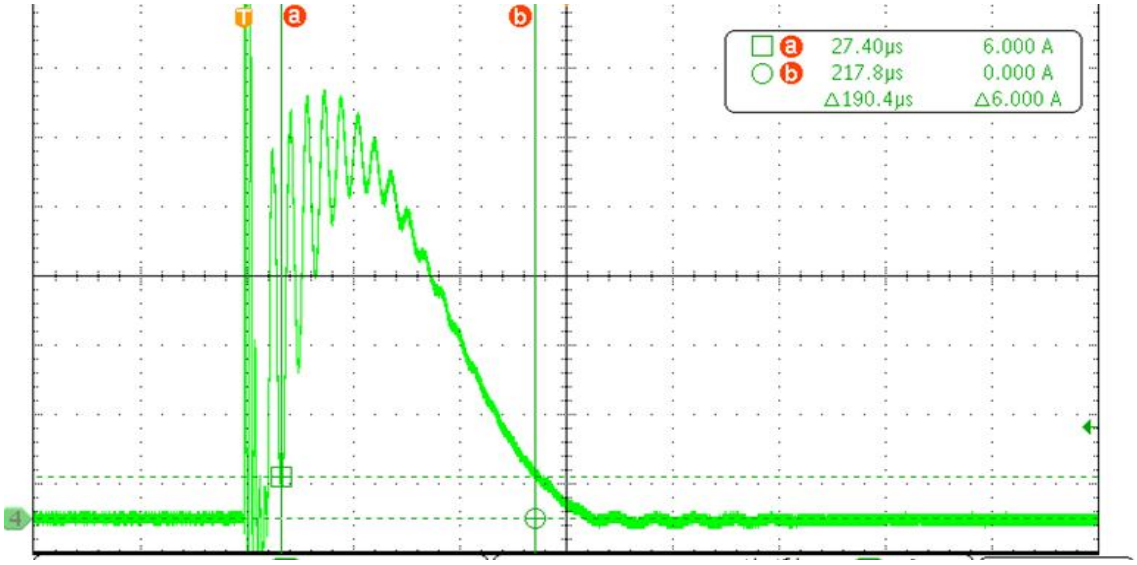
EMC COMPLIANCE

EMC Category	Country / Territory	Standards	Whether have Certification
CCC	China	GB/T 17743, GB 17625.1	√
CE	Europe	EN 55015	√
		EN 61000-3-2, EN 61000-3-3	√
		EN61000-4-2,3,4,5,6,11	√
		EN 61547	√
KC	South Korea	K61547	
		K00015	
PSE	Japan	J55015	
FCC	USA	FCC part 15	

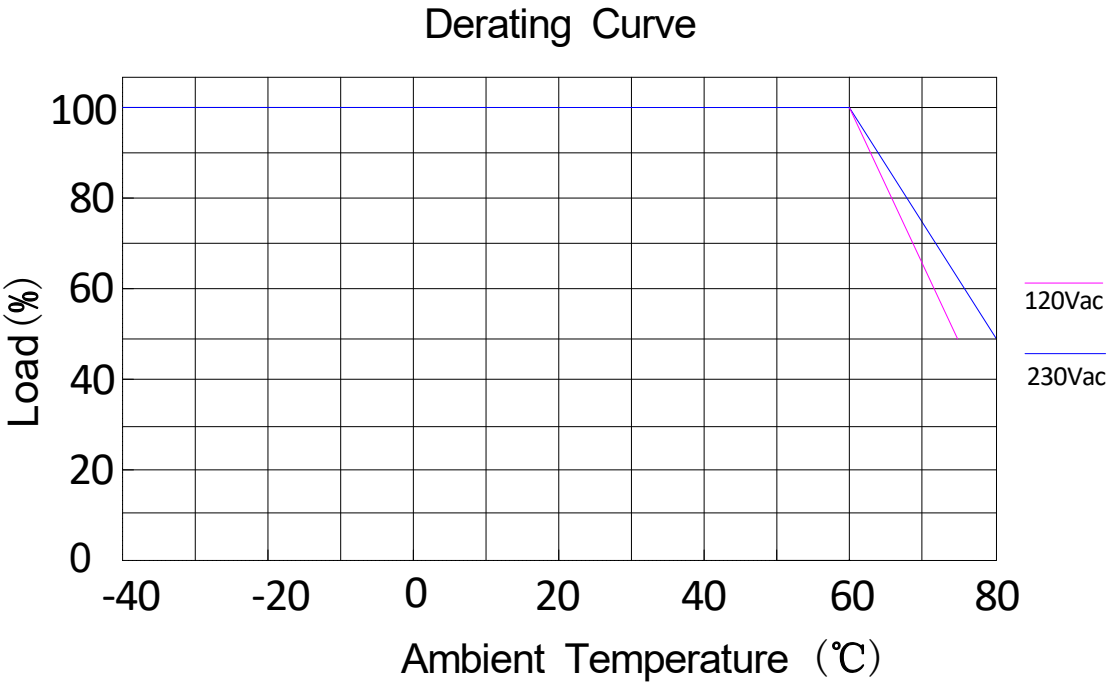
NOTE:

This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

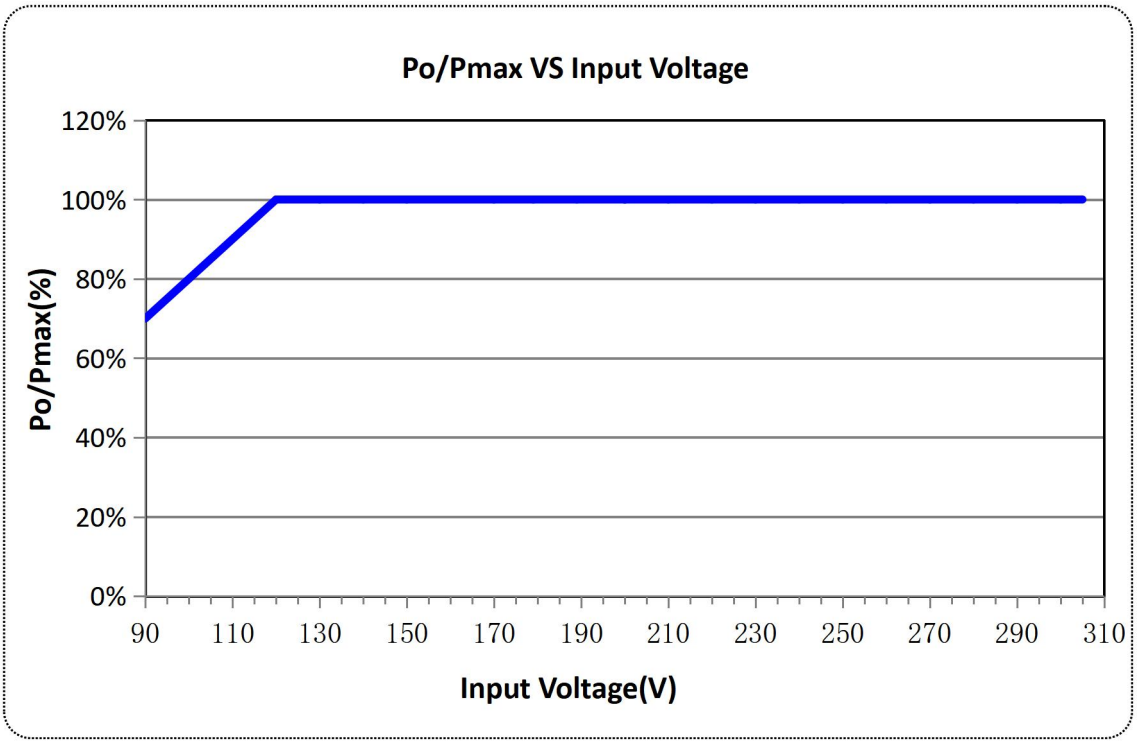
INRUSH CURRENT WAVEFORM



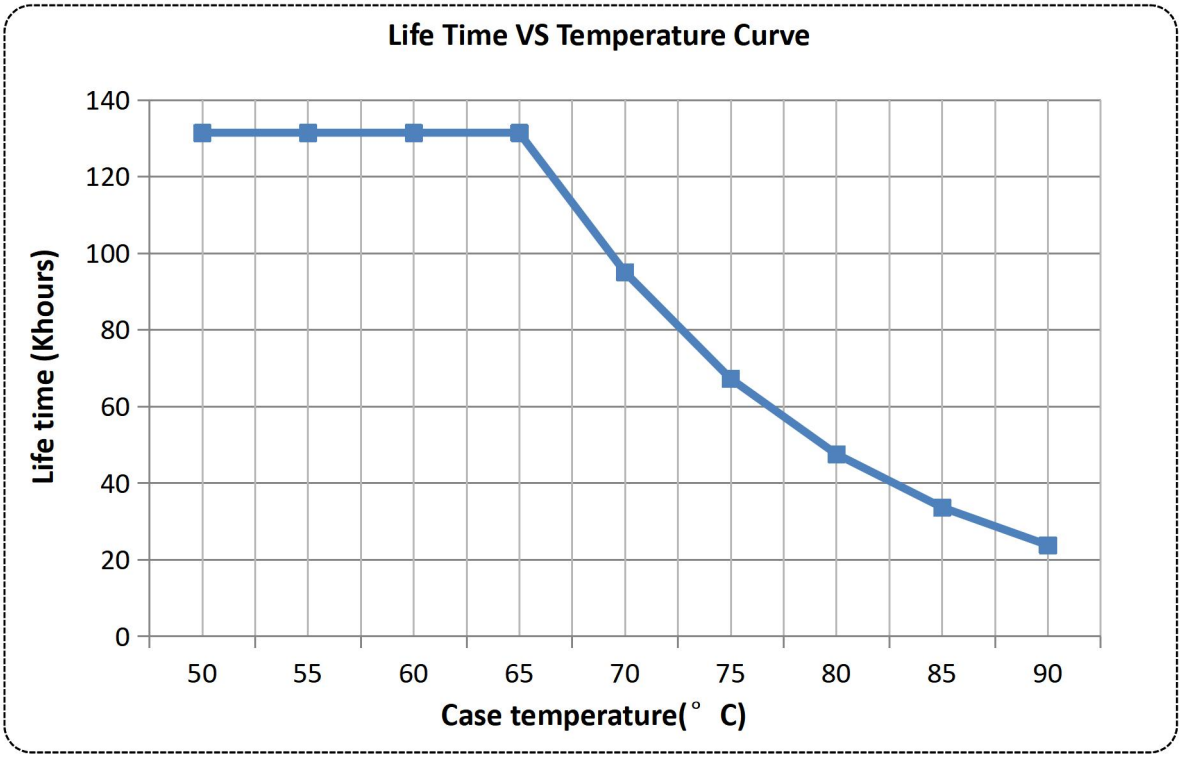
DERATING CURVE



OUTPUT POWER VS INPUT VOLTAGE

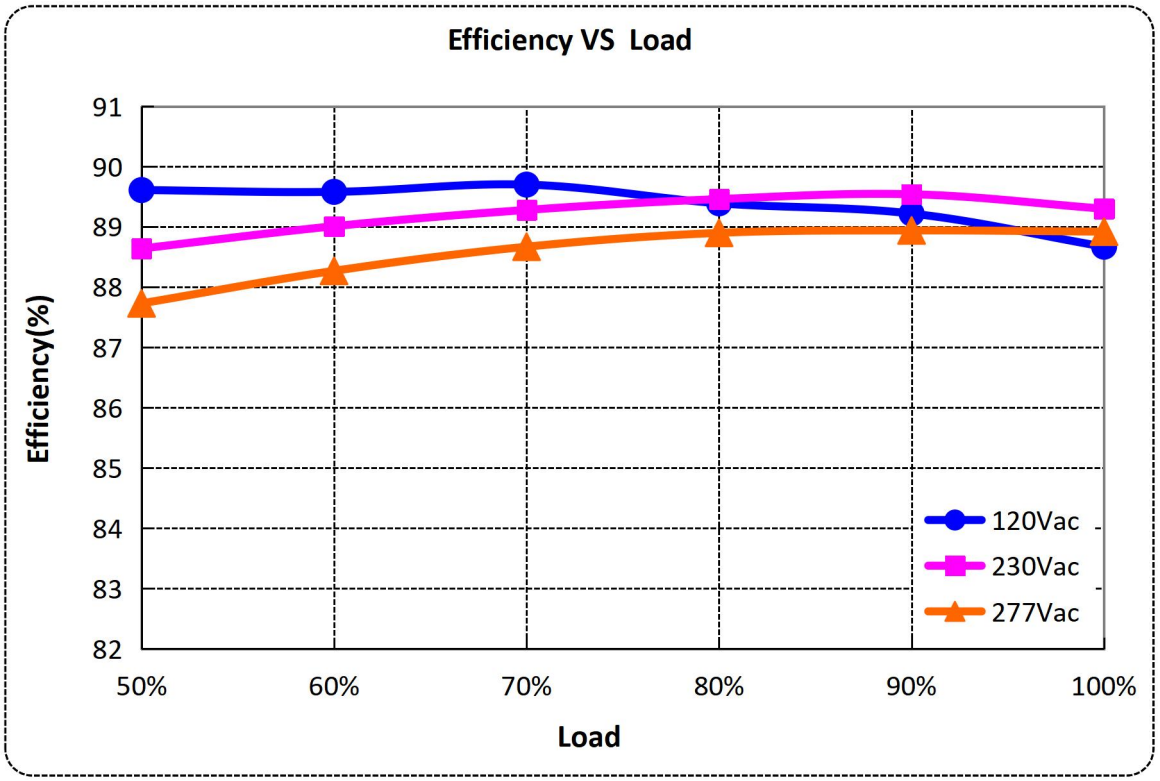


LIFETIME VS CASE TEMPERATURE



EFFICIENCY VS LOAD

Io=1.34A



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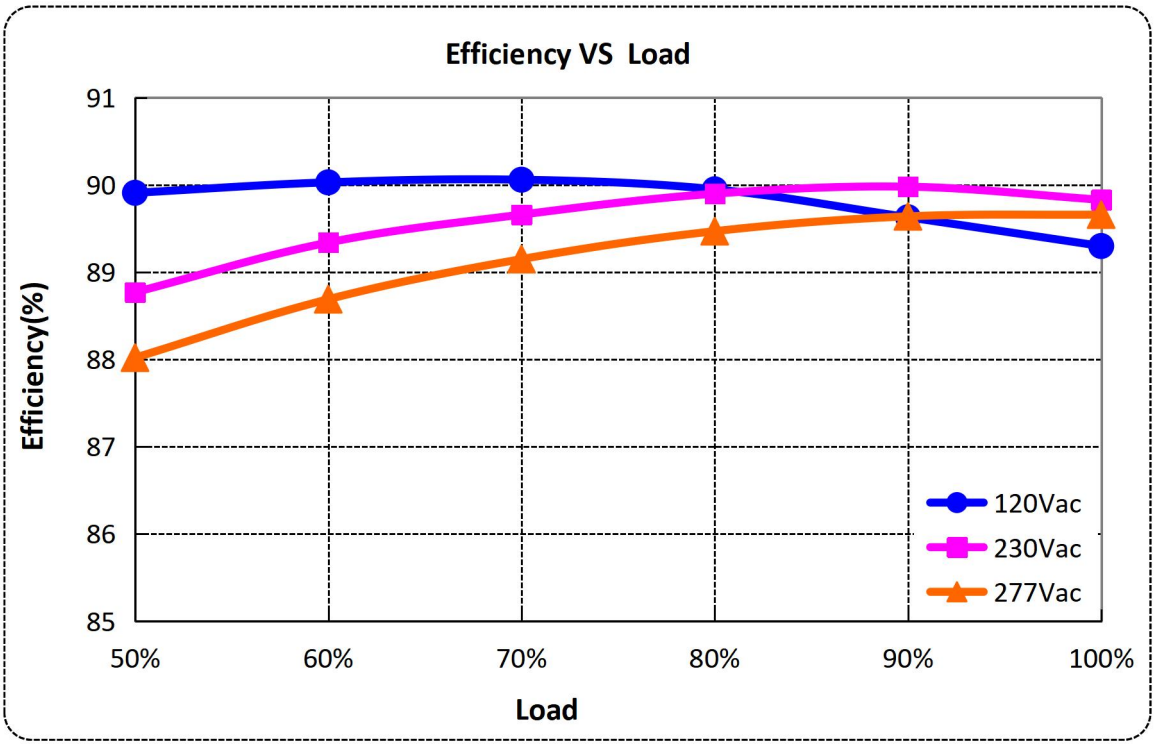
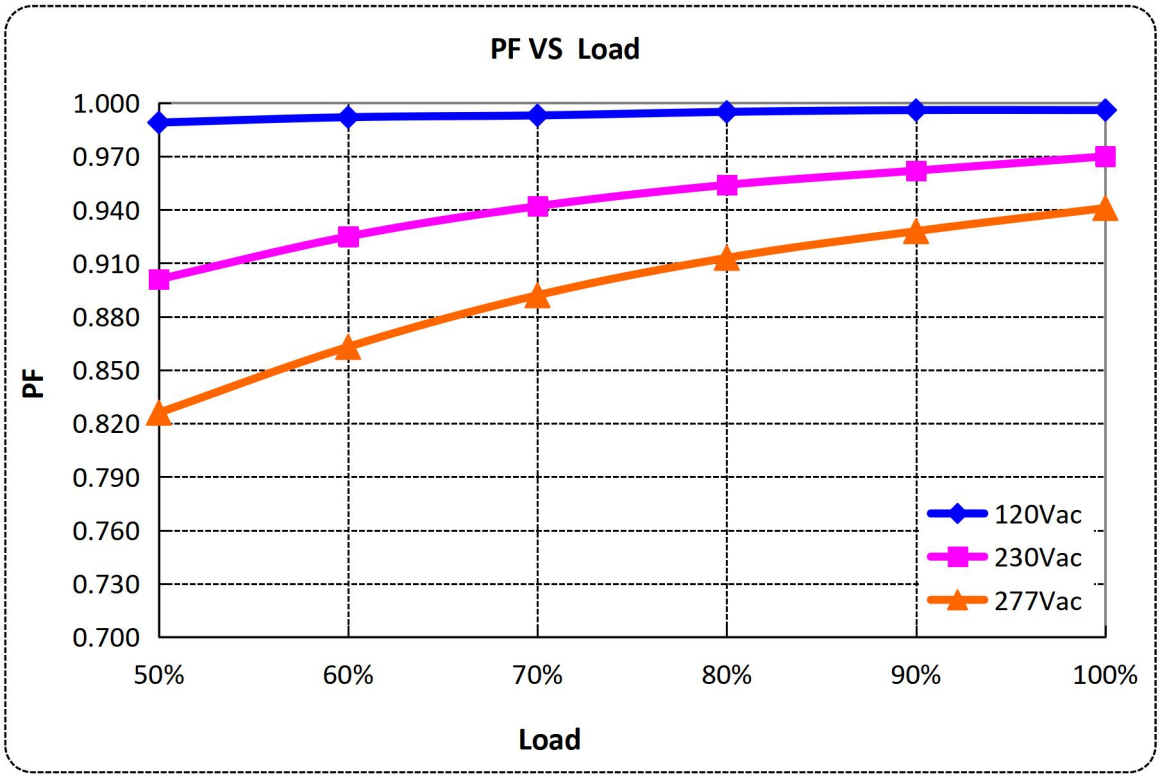
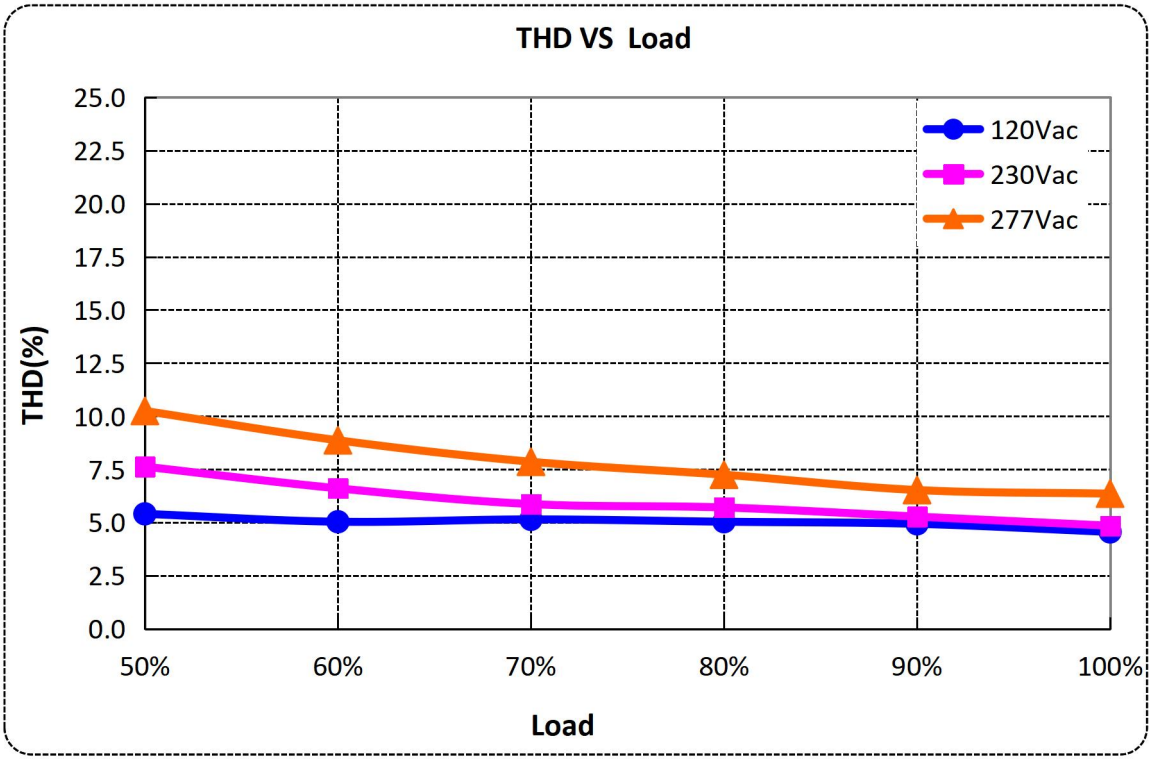


POWER FACTOR VS LOAD



TOTAL HARMONIC DISTORTION

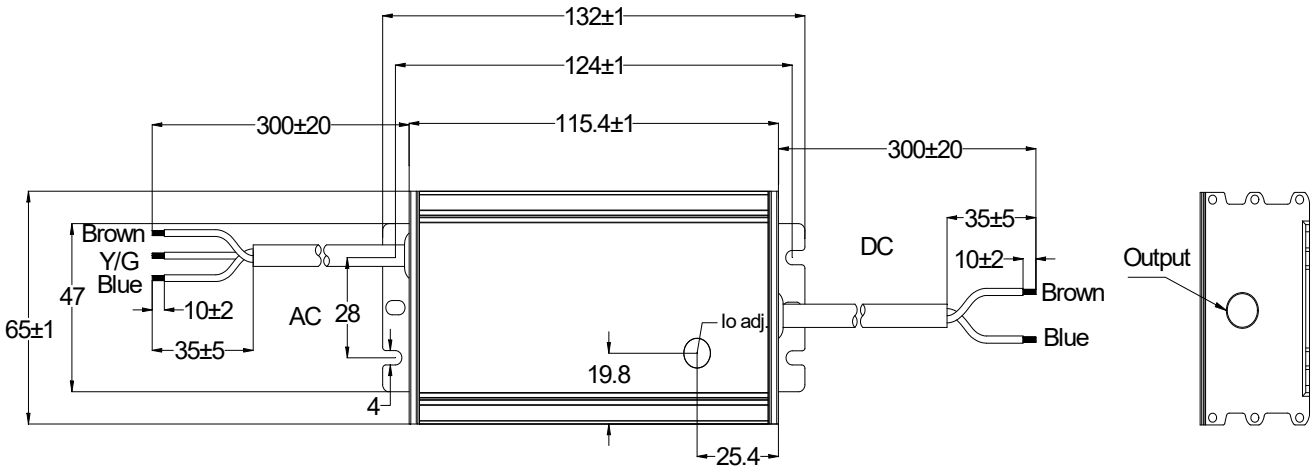


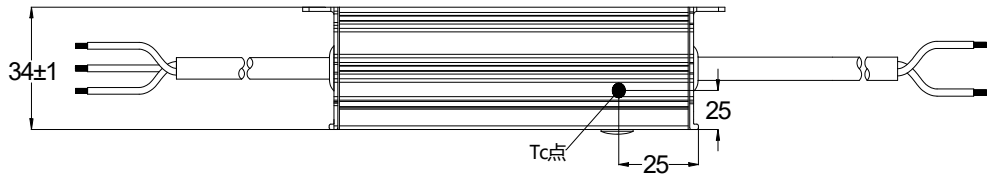
PROTECTIONS

Parameter	Notes
Over Temperature Protection	Decreases output current, returning to normal after over temperature is removed.
Short Circuit Protection	Constant current mode and auto recovery. No damage will occur when any output is short circuited. The output shall return to normal when the fault condition is removed.
Output over Voltage Protection	Run into protection model when output voltage exceeds limit, and return to normal when the fault.

MECHANICAL OUTLIN

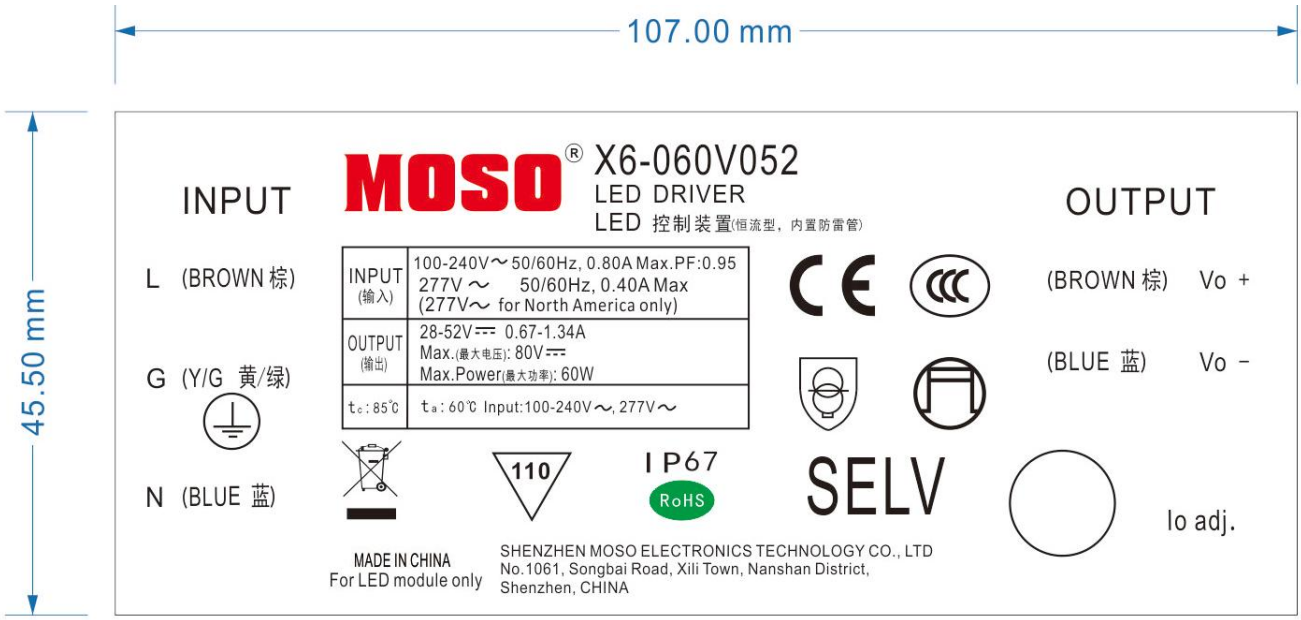
X6-060V052





Wire	Specification	Note
Input	CCC+VDE H05RN-F *3C L=300±20mm	CCC/CE
Output	CCC+VDE H05RN-F *2C L=300±20mm	CCC/CE

LABEL


107.00 mm
45.50 mm
INPUT
L (BROWN 棕)
G (Y/G 黄/绿)
N (BLUE 蓝)
MOSO®
X6-060V052
LED DRIVER
LED 控制装置(恒流型，内置防雷管)
INPUT (输入)
100-240V～ 50/60Hz, 0.80A Max.PF:0.95
277V～ 50/60Hz, 0.40A Max
(277V～ for North America only)
OUTPUT (输出)
28-52V⎓ 0.67-1.34A
Max.(最大电压): 80V⎓
Max.Power(最大功率): 60W
tc: 85℃
ta: 60℃ Input:100-240V～, 277V～
110
IP67
RoHS
SELV
OUTPUT
(BROWN 棕) Vo +
(BLUE 蓝) Vo -
Io adj.
MADE IN CHINA
For LED module only
SHENZHEN MOSO ELECTRONICS TECHNOLOGY CO., LTD
No.1061, Songbai Road, Xili Town, Nanshan District,
Shenzhen, CHINA