



Product Features

- Universal input voltage / Full range: 108~305Vac;
- Constant power design, output current programming adjustable;
- offline programmable
- 3-in-1 dimmable: 0~10Vdc, PWM, Timer dimming. Dim-to-off;
- Constant lumen output;
- Output and Dimming Signal Isolating;
- 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;
- 7 years warranty.

Application

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

DESCRIPTION

The X6-680W series is 680W outdoor offline programmable LED driver that operates in constant current with high PF value and universal input voltage range 108~305Vac model. Offline Monitored by dimming cable connected with an USB kit programming device, the fully programmed drivers offer all dimming, dim-to-off, constant lumen output options and a wide range of output current in a single driver, which deliver maximum flexibility with customized operating settings and intelligent control options for lighting manufacturers, as one driver can be programmed for many different luminaire designs. X6 provides built-in timer dimming schedules further increasing the energy savings and CO₂ reductions achieved with LED lighting. It also helps clients to improve the management of logistics and stock. The compact metal case and high efficiency enables the driver to operating with high reliability, and extending product lifetime. Overall protection is provided against lightening surge, output over voltage, short circuit, and over temperature, to ensure low failure rate.

MODELS

Model Number [1]	Max Output Power(W)	Output Voltage Range(Vdc)	Full Power Output Voltage Range (Vdc)	Full Power Current Adjustable Range (A)	Default Output Current Setting(A)	Typical Efficiency [2]	PF
X6-680M056A12	680	30-56	45.3-56	12.15-15.0	45.3V/15A	94%	0.96@230

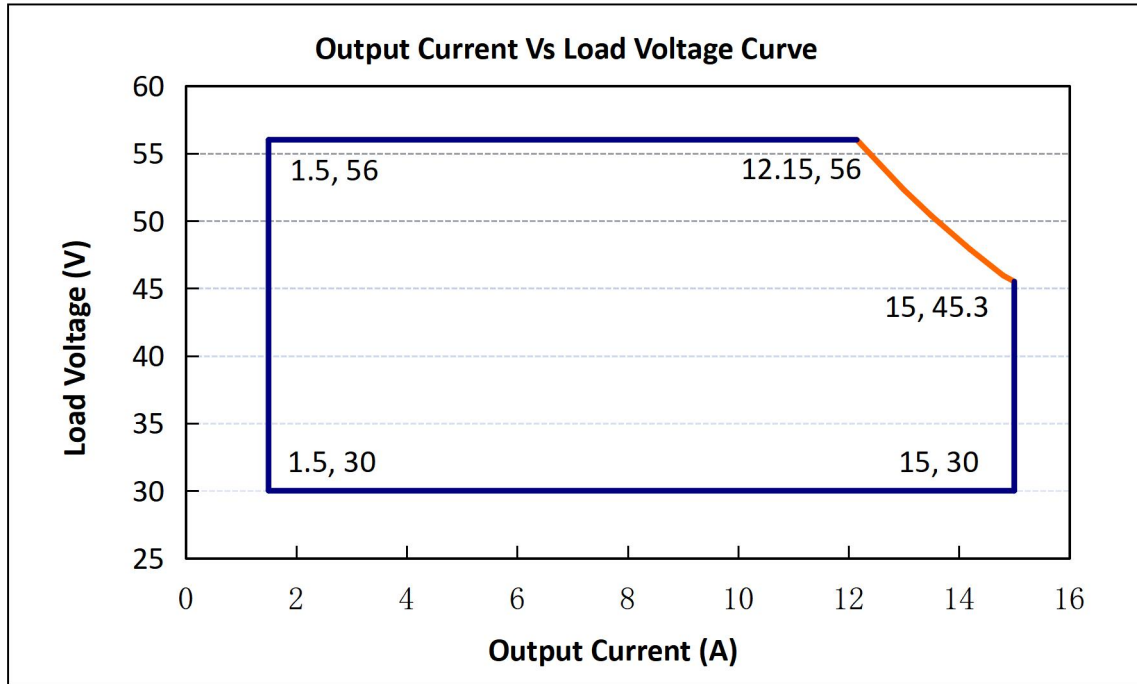
Notes:

[1]. Output current adjustable range with constant power at max output power;

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

OPERATING AREA I-V

X6-680M056A12



INPUT SPECIFICATIONS

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	108Vac	120-277Vac	305Vac	
Input Frequency	47Hz	50/60	63Hz	
Leakage Current	-	-	0.75mA	277Vac/60Hz
Input AC Current	-	-	6.5A	120-277Vac & full load
Inrush Current	-	-	38A	230Vac & full load
Standby Power Consumption		-	0.5W	@230Vac 25°C Dim to off, AUX. Power no load
Power Factor	0.97	0.99	-	120Vac, 50-60Hz, full load
	0.95	0.97		230Vac, 50-60Hz, full load
	0.92	0.95		277Vac, 50-60Hz, full load
THD	-	5%	10%	120-230Vac, 50-60Hz, 100% load
	-	-	20%	277Vac, 50-60Hz, 70%-100% load

OUTPUT SPECIFICATIONS

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%	-	5%	
Output Current Setting Range(A) X6-680M056A12	10% I _{max}		100% I _{max}	The 'M type' adjustable lout range: 10%-100% I _{max}
Output Current Setting Range(A)	1.50	-	15.0	
No Load Output Voltage (V)	-	-	70	
Total Output Current Ripple(pk-pk)	-	±5%	±10%	20MHz BW, full load& LED load, the ripple would be tiny different under different LED load.
Startup Overshoot Current (%)	-	-	10	120~277Vac & 100% Load, load is LED
Line Regulation (%)	-1	-	1	25°C±10°C ambient temperature, input voltage changes from 120Vac to 277Vac.
Load Regulation (%)	-3	-	3	25°C±10°C ambient temperature, Input Voltage 230Vac, load changes from 60% to 100%.
AUX. Power output voltage (V)	11.4	12	12.6	
Turn-on Delay Time	-	1	2S	120-277Vac, 100%load, 10-90% Vo

GENERAL SPECIFICATIONS

Parameter	Min.	Typ.	Max.	Remark
Efficiency @120Vac I _o =15.0A	90%	92%	-	Measured at full load and 25°C ambient temperature
Efficiency @230Vac I _o =15.0A	92%	94%	-	
Efficiency @277Vac I _o =15.0A	92.5%	94.5%	-	
Grounding Resistance (Ω)	-	-	0.1	25A/60S, under 25°C±10°C ambient temperature
Insulation Resistance (MΩ)	10	-	-	Input-Output, Input-PE, Output-PE, 500Vdc/60S/25°C/70%RH
Dielectric Strength	Input-Output	-	3750Vac	Max 5mA/60S
	Input-PE	-	1600Vac	
	Output-PE	-	1600Vac	
MTBF (Hr)	-	200000	-	Telcordia SR-332, 100% load, & Ta = 25°C
Lifetime (Hr)	-	50000	-	
Ambient Temperature (°C)	-40		+45	
Operating Case Temperature for Safety Tc _s (°C)	-40	-	+90	
Operating Case Temperature for Warranty Tc _s (°C)	-40	-	+75	5years warranty case temperature Humidity: 10% to 95% RH
Storage Temperature (°C)	-40	-	+85	Humidity: 10% to 95% RH
Working elevation	-50m	-	4000m	

Dimensions (LxWxH)mm	L281*W135*H45.5mm;	
Net Weight	3.2±0.3kg/PCS	
Package	L465xW400xH210mm 5PCS/Ctn, Gross Weight: 18Kg	

DIMMING

Parameter	Min.	Typ.	Max.	Notes
0~10V Absolute Maximum Voltage on the Vdim (+) Pin (V)	-	10	-	
0~9V Source Current on Vdim(+)Pin (mA)	-	0.2	0.4	
Dimming Output Range	10%	-	100% I _{max}	I _{max} =15.0A
Recommended Dimming Range for 0-10V (V)	0	-	10	
PWM_in High Level (V)	9.7	-	10.5	
PWM_in Low Level (V)	0	-	0.3	
PWM_in Frequency Range	300Hz		2kHz	
PWM_in Duty Cycle	1%	-	99%	

SAFETY STANDARDS

Safety Category	Country / Territory	Standards	Approved
CCC	China	GB19510.1, GB19510.14	
CE	Europe	EN61347-1, EN61347-2-13	√
		EN62493	√
ENEC		EN62384	
CB	CB Countries	IEC61347-1, IEC61347-2-13	√
UL	USA	UL 8750	√
CUL	Canada	CSA C22.2 No.250.13	√

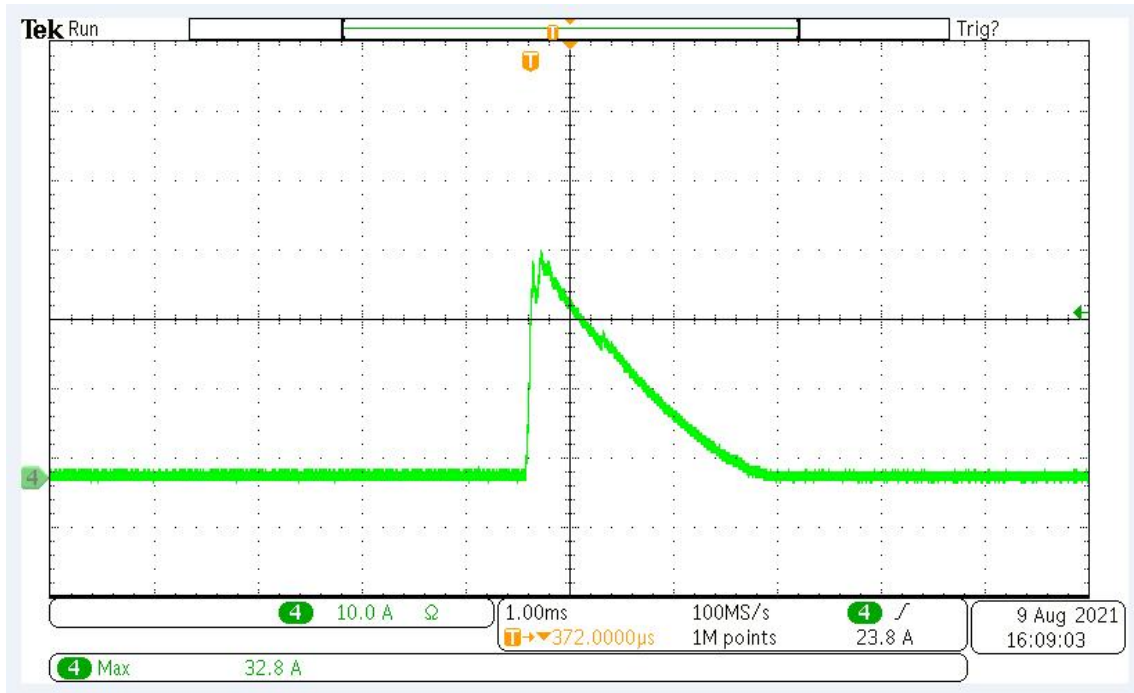
EMC COMPLIANCE

Safety Category	Country / Territory	Standards	Approved
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	
FCC	USA	FCC part 15	√

NOTE:

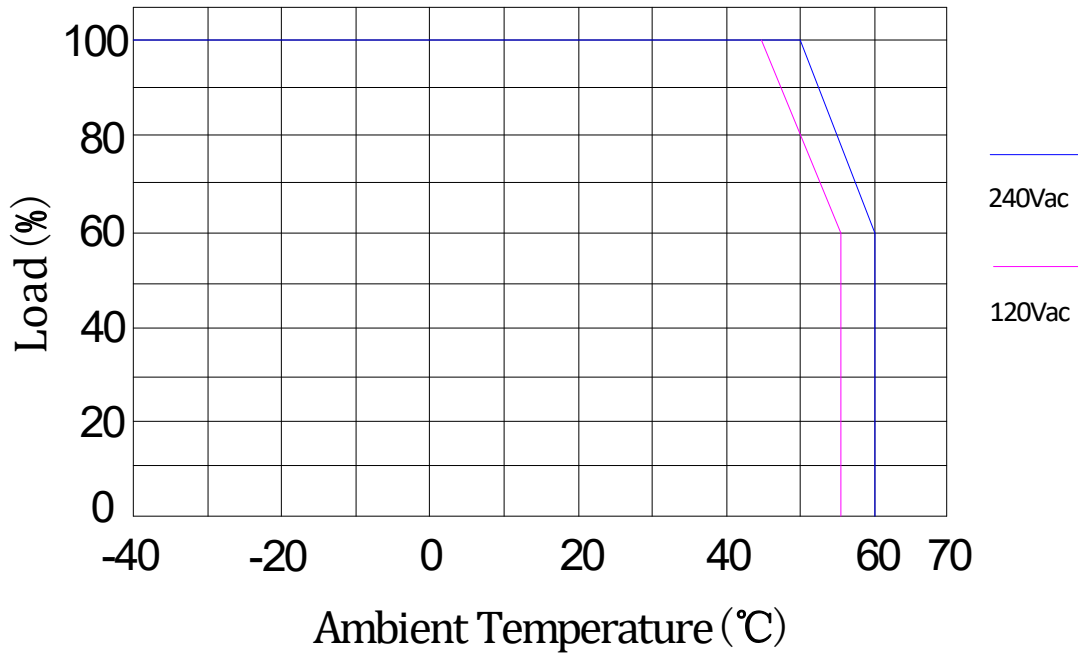
This LED driver meets the EMI specifications above, but as a component of a luminaire, end customer need to identify the EMI performance of a luminaire including LED driver, other devices connected to the driver and on the luminaire itself.

INRUSH CURRENT WAVEFORM

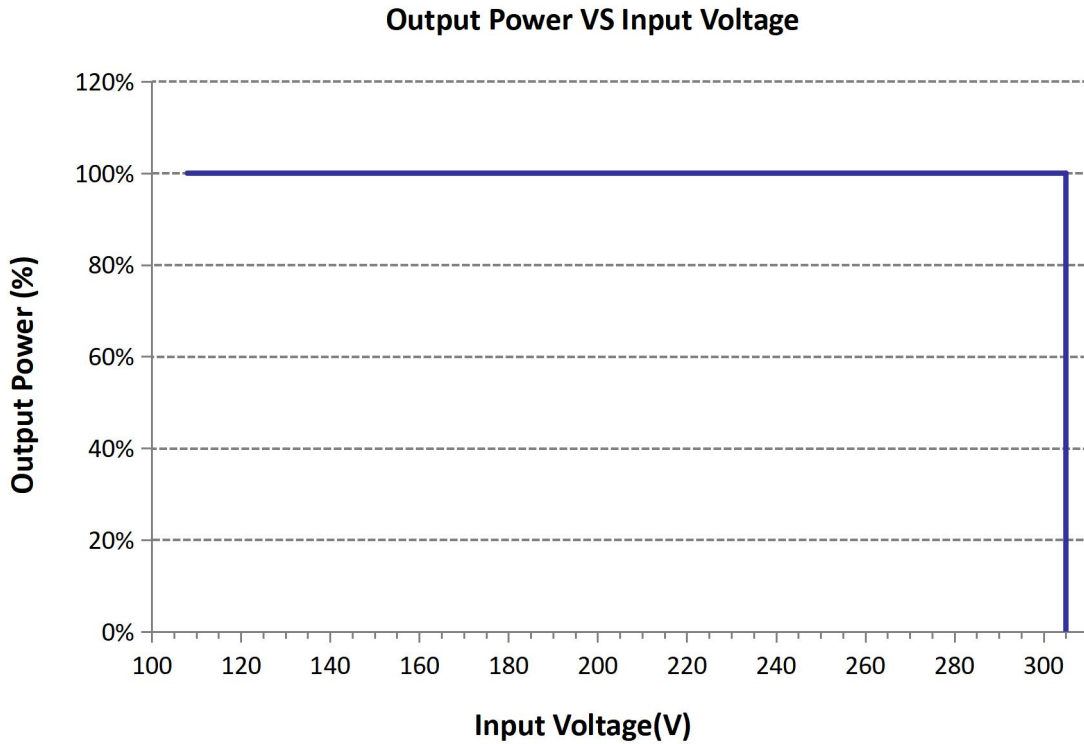


DERATING CURVE

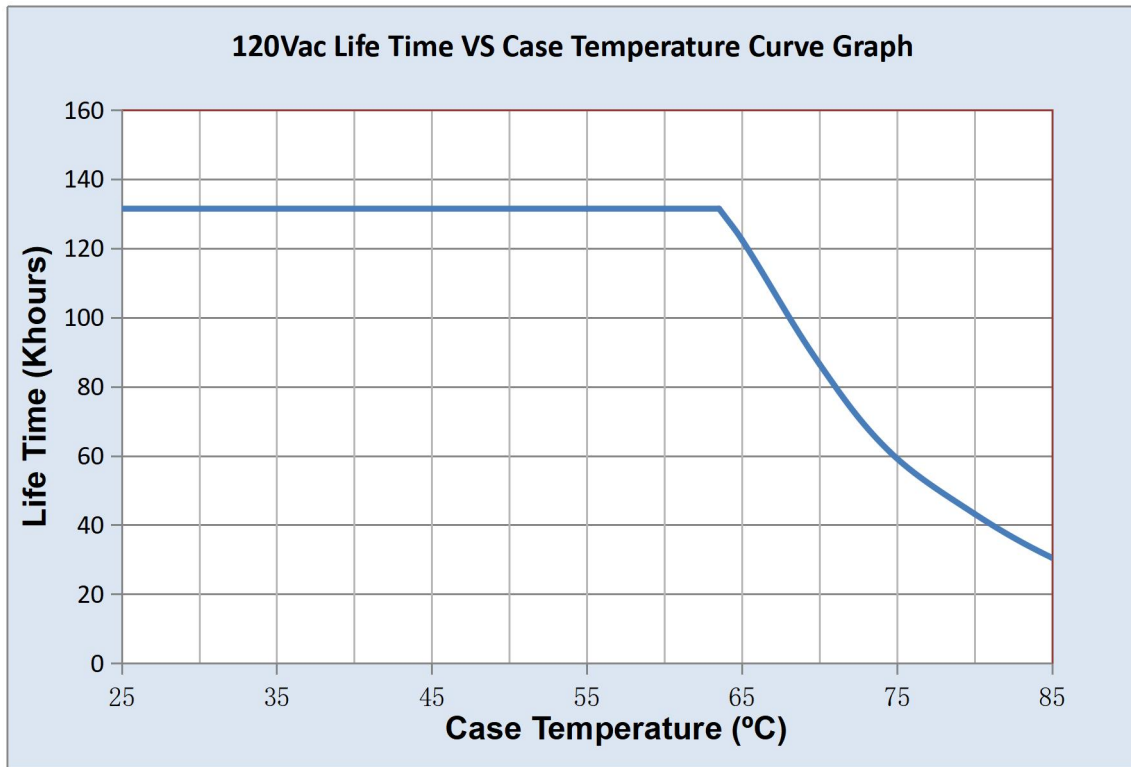
Derating Curve



OUTPUT POWER VS INPUT VOLTAGE

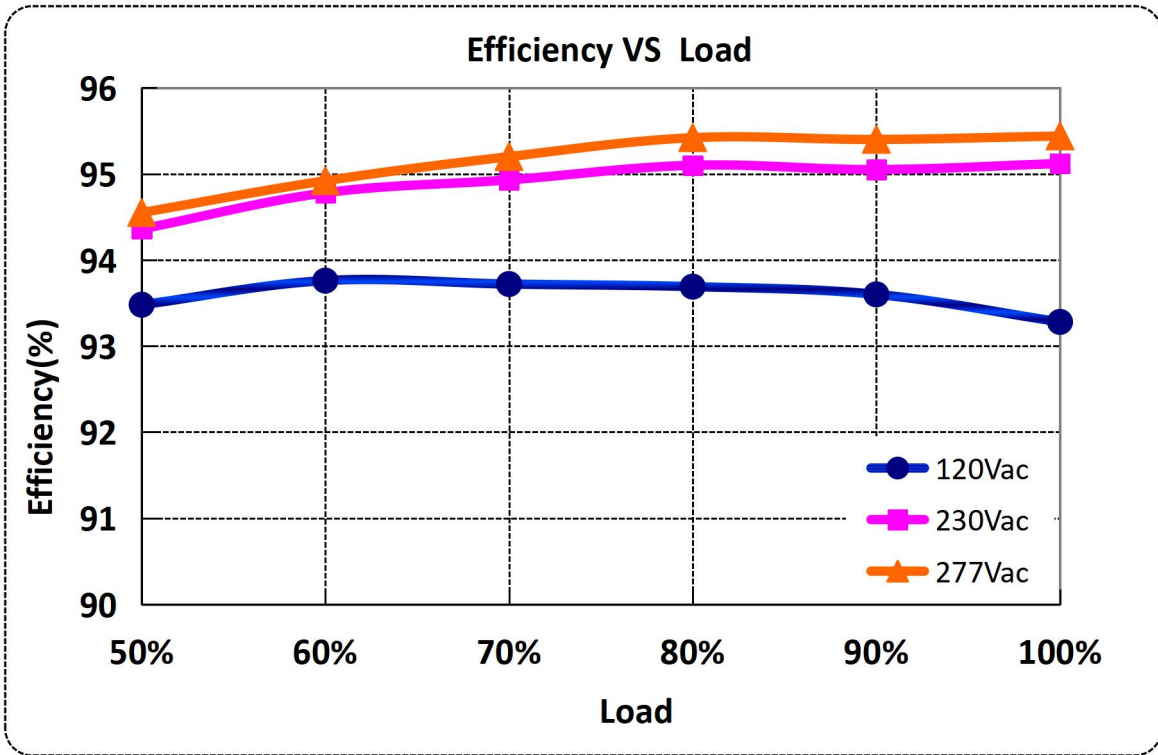


LIFETIME VS CASE TEMPERATURE

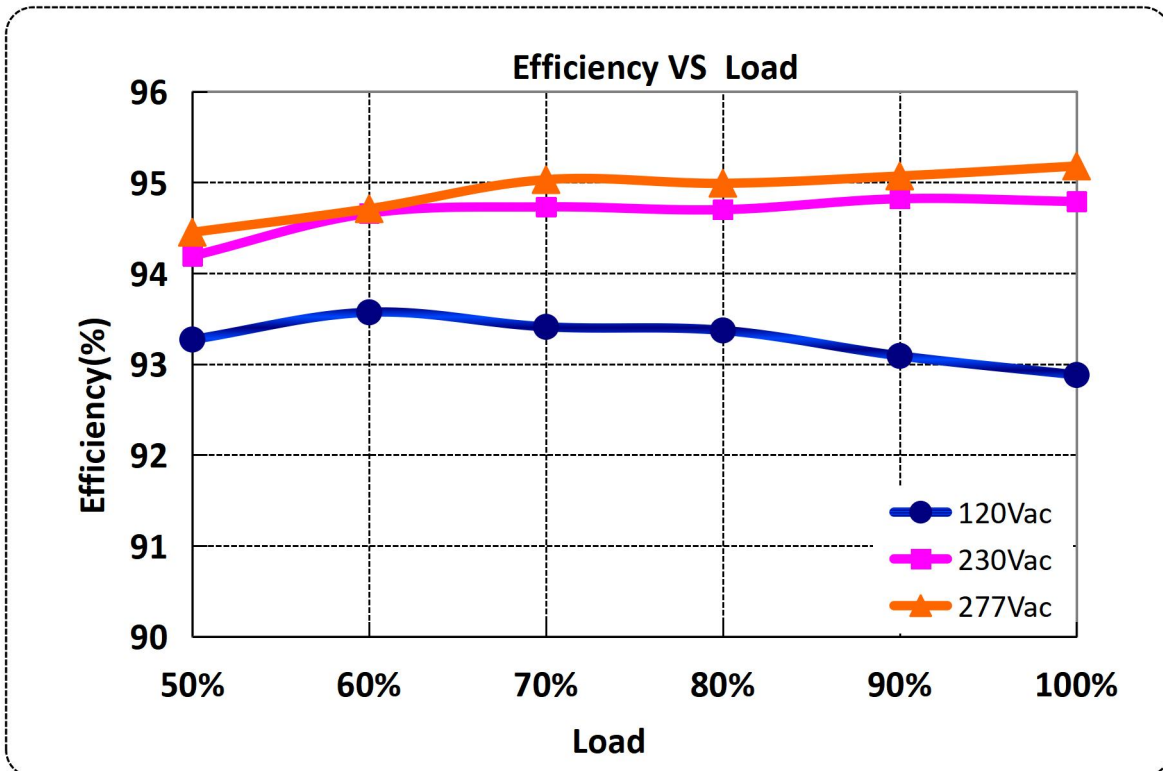


EFFICIENCY VS LOAD

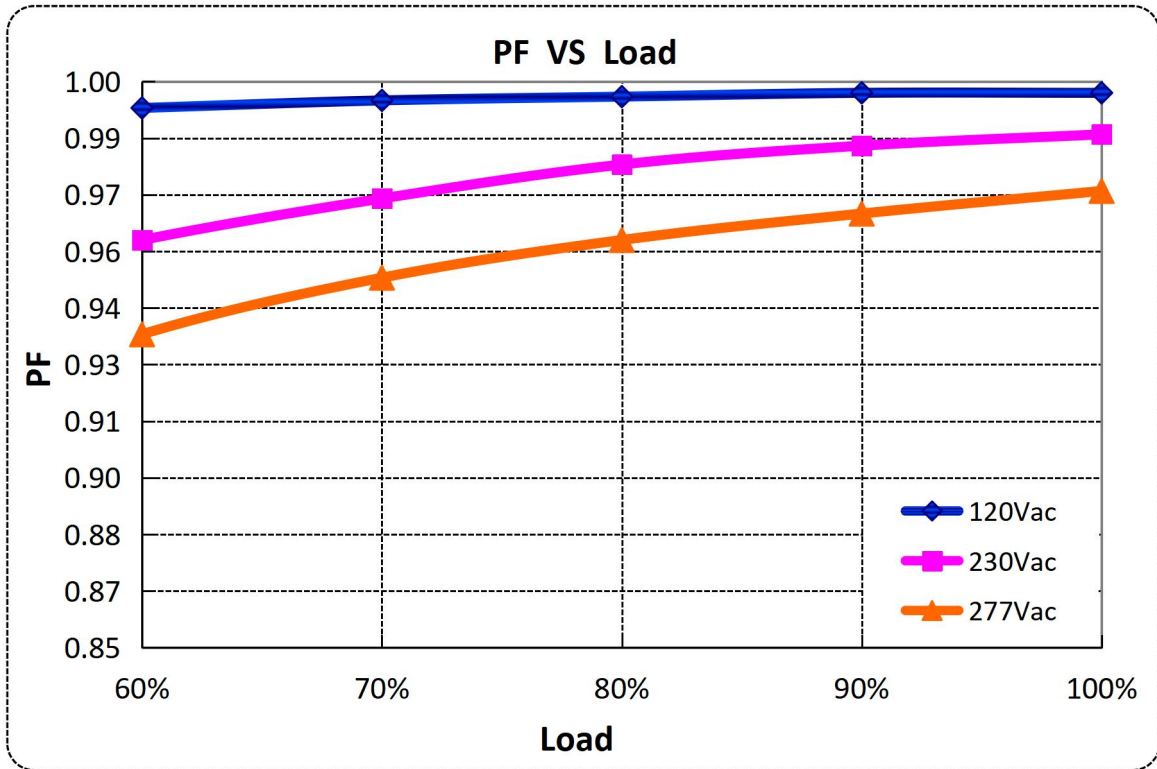
Io=12.15A



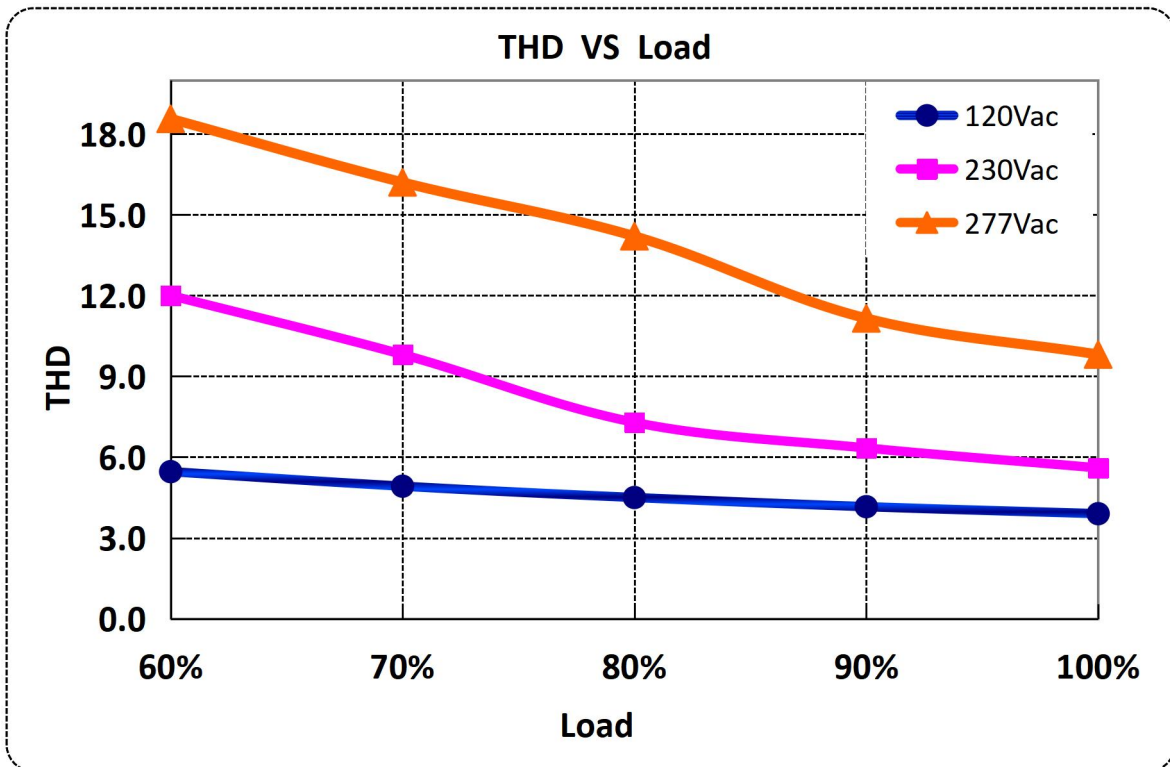
Io=15.0A



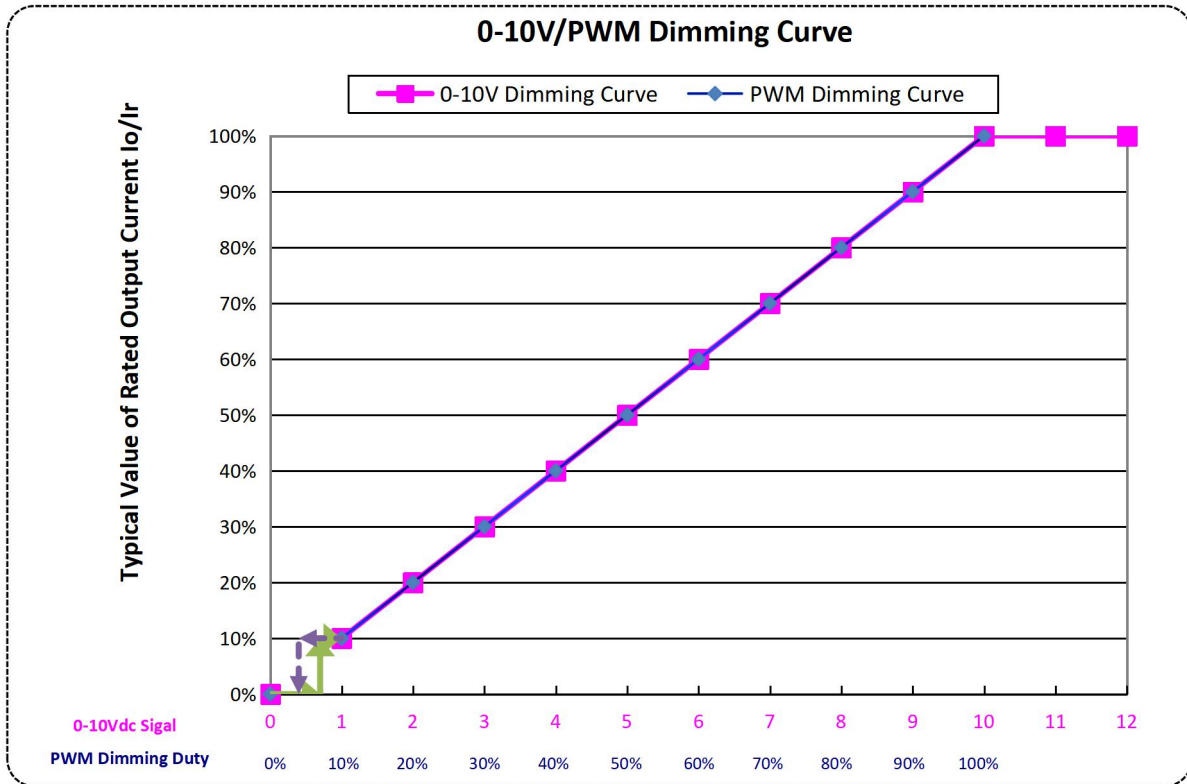
POWER FACTOR VS LOAD



TOTAL HARMONIC DISTORTION



0-10V/PWM DIMMING

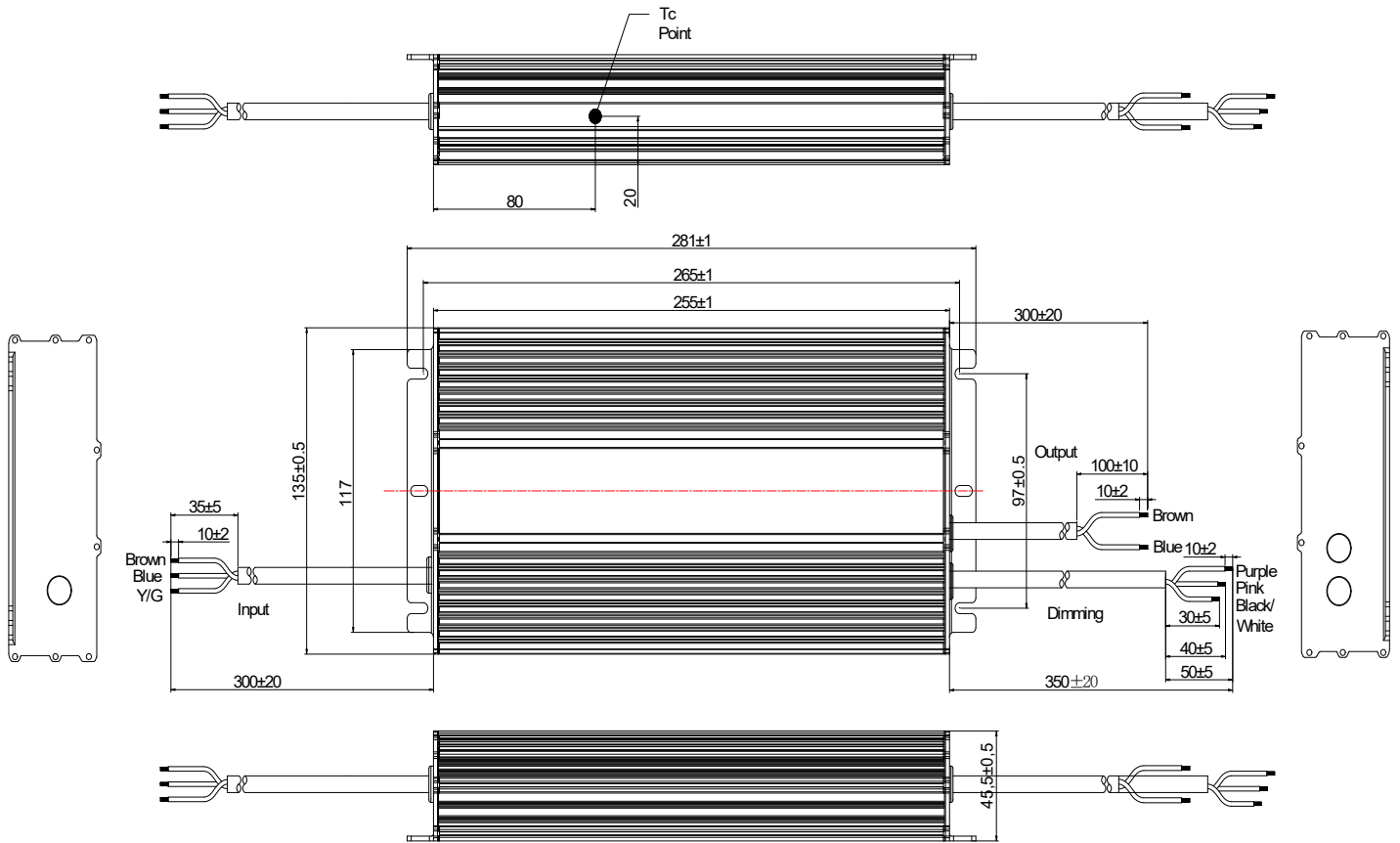


PROTECTIONS

Parameter	Notes
Over Temperature	Decreases output current, returning to normal after over temperature is removed.
Short Circuit	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.
Over Voltage	Run into protection model when output voltage exceeds limit, and return to normal when the fault is eliminated and restart the power supply

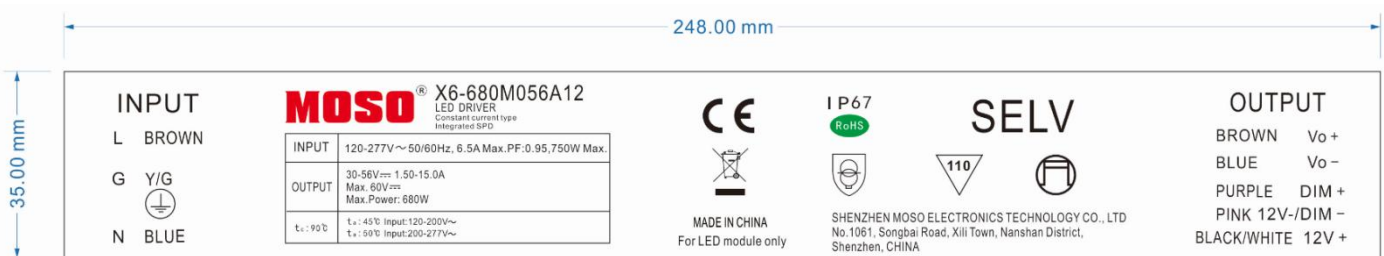
MECHANICAL OUTLINE

X6-680M056A12



Wire	Specification	Note
Input	CCC+VDE *3C L=300±20mm	CCC+CE
Output	CCC+VDE *2C L=300±20mm	CCC+CE
Dimming	UL 21996 22AWG *3C L=350±20mm	A12

LABEL





Specification for Approval

Product Name: 680W outdoor off-line programmable driver
Product Model: X6-680M056A12
Rev.: A.1
Sample Date: -

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

