

Specification for Approval

Product Name: 320W Outdoor Off-line Programmable Driver
Product Model: X6-320M457(Premium)
X6-320V457(Premium)
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.		

XiLi Songbai Road 1061, Nanshan
Address: District, Shenzhen City, Guangdong Province, P.R.China Post Code: 518108
TEL: 0755-27657000 FAX: 0755-27657908
E-mail: info@mosopower.com Web site: http://www.mosopower.com

Prepared By	Checked By	Approved By



Product Features

- Universal input voltage / Full range: 90~305Vac;
- Constant power design, output current programming adjustable;
- (M types) offline programmable, (V types) output current adjustable by built-in potentiometer;
- 3-in-1 dimmable: 0~10Vdc, PWM, Positive and negative logic, Timer dimming, Dim-to-off;
- (M types) Constant lumen output, daily log;
- Output and Dimming Signal Isolating
- Surge protection: 5KV line-line, 10KV line-earth;
- Protections: SCP, OVP, OTP;
- IP67 design for indoor and outdoor applications;
- Suitable for dry / damp / wet locations;
- 10 years warranty.

Application

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

DESCRIPTION

The X6-320 series is 320W outdoor offline programmable LED driver that operates in constant current with high PF value and universal input voltage range 90~305Vac 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.

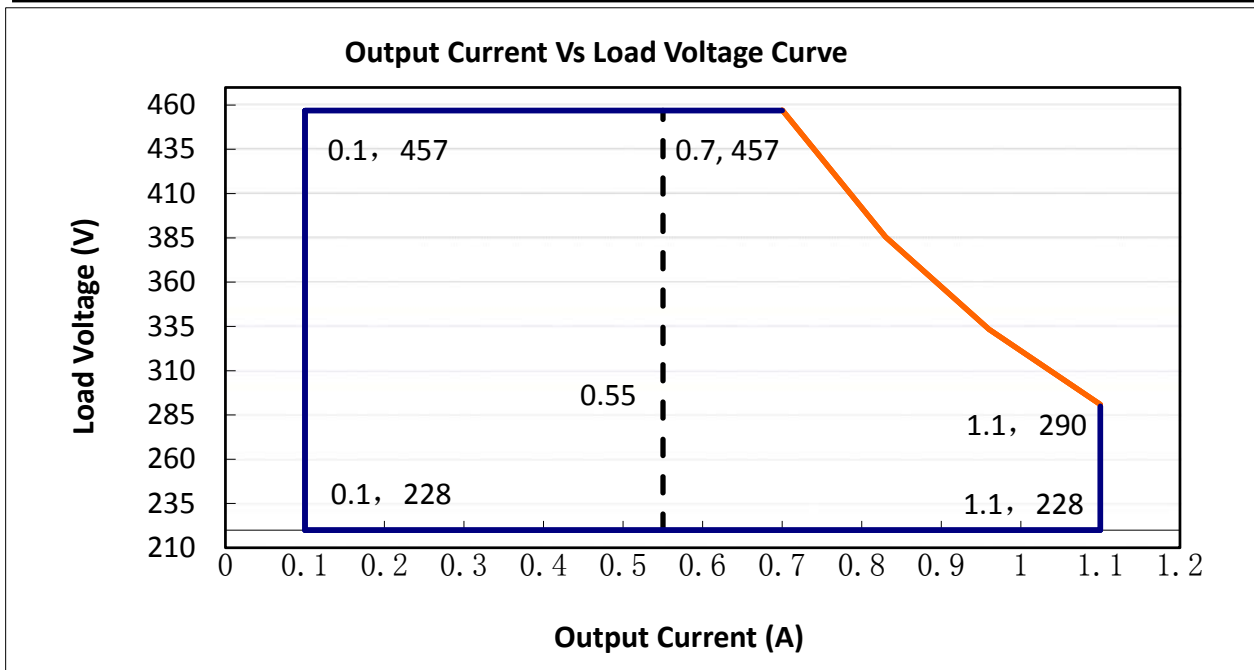
MODELS

Model Number [1]	Max Output Power (W)	Output Voltage Range (Vdc)	Full Power Output Voltage Range (Vdc)	Full Power Current Adjustable Range (A) [2]	Default Output Current Setting(A)	Typical Efficiency [3]	PF
X6-320Y457	320	228-457	290-457	0.70-1.10	0.70	93%	0.97

Notes:

- [1]. Y can be M or V. Y=M means dimmable and offline programmable, The adjustable lout range: 10%-100% I_{max}; Y=V means non-dimmable and output current adjusted by built-in potentiometer.
- [2]. Output current adjustable range with constant power at max output power;
- [3]. 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



Notes:

Notes: The drivers are not allowed to work in over-load condition, otherwise warranty will expire. Y=V is suitable for the right area of the dotted line; Y=M is suitable for the solid line contain area.

INPUT SPECIFICATIONS

Parameter	Min.	Typ.	Max.	Notes			
Input Voltage	90Vac	100-277Vac	305Vac				
Input Frequency	47Hz	50/60	63Hz				
Leakage Current	-	-	0.70mA	277Vac/60Hz			
Input AC Current	-	-	4.2A	100-277Vac & full load			
Inrush Current	-	-	4.5A ² S	230Vac & full load			
Standby Power Consumption			1W	230Vac/50 Hz			
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%	100-240Vac, 50-60Hz, full load			
	-	-	15%	277Vac, 50-60Hz, full load			
Max. NO. of PSUs on CIRCUIT BREAKER	B10	1	B16	1	B25	2	230V
	C10	1	C16	2	C25	3	

OUTPUT SPECIFICATIONS

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%	-	+5%	

Output Current Setting Range (A) X6-320Y457	0.55	-	1.10	The 'M type' adjustable lout range: 10%-100% I _{max} ,
Output Current Setting Range with Constant Power X6-320Y457	0.70	-	1.10	
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%	100~277Vac &100% Load, load is LED
No Load Output Voltage X6-320Y457	-	-	480	
Line Regulation	-1%	-	1%	25°C±10°C ambient temperature, input voltage changes from 100Vac to277Vac.
Load Regulation	-3%	-	3%	25°C±10°C ambient temperature, Input Voltage 230Vac, load changes from 60% to 100%.
Turn-on Delay Time	-	1S	3S	120Vac,100% load
	-	-	2S	230Vac,100% load

GENERAL SPECIFICATIONS

Parameter	Min	Typ	Max	Notes
Efficiency @120Vac X6-320Y457 I _o =0.70 I _o =1.10	87.46% 87.73%	89.46% 89.73%		Measured at full load and 25°C ambient temperature
Efficiency @230Va X6-320Y457 I _o =0.70 I _o =1.10	90.84% 90.56%	92.84% 92.56%		Measured at full load and 25°C ambient temperature
Efficiency @277Vac X6-320Y457 I _o =0.70 I _o =1.10	91.68% 91.53%	93.68% 93.53%		Measured at full load and 25°C ambient temperature
Dielectric Strength	Input-Output	-	3750Vac	Max 5mA/60S
	Input-PE	-	1600Vac	
	Output-PE	-	1600Vac	
Grounding Resistance	-	-	0.1Ω	25A/60S, under 25°C±10°C ambient temperature
Insulation Resistance	10MΩ	-	-	Input-Output, Input-PE, Output-PE, 500Vdc/60S/25°C/70%RH
MTBF	-	200000Hrs	-	25°C±10°C ambient temperature, 230Vac,80% load (MIL-HDBK-217F)
Lifetime	-	50000Hrs 100000Hrs	-	t _c = 85°C, 0.2% / 1`000 h failure rate t _c = 75°C, 0.1% / 1`000 h failure rate 230Vac&80% load
Ambient Temperature	-40°C		+60°C	230Vac&100% load
Operating Case Temperature for Safety T _{c_s}	-40°C	-	+90°C	
Operating Case Temperature for Warranty T _{c_s}	-40°C	-	+75°C	10 years warranty case temperature Humidity: 10% to 95% RH
Storage Temperature	-40°C	-	+85°C	Humidity: 5% to 100% RH
Dimensions (LxWxH)mm	L231*W98*H42mm			
Net Weight	1700±100g/PCS			
Package	L610mm*W370mm*H160mm; 10PCS/Ctn, Gross Weight: 18.8Kg			

DIMMING

Parameter		Min.	Typ.	Max.	Notes
0~10V Absolute Maximum Voltage on the Vdim (+) Pin		-	10V	-	
0~10V Source Current on Vdim(+)Pin		-	200uA	400uA	
Dimming Output Range	X6-320Y457	10% I _{max}	-	100% I _{max}	I _{max} =1.10A
	X6-320Y457	0.11	-	1.10	
Recommended Dimming Range for 0-10V		0V	-	10V	Default 0-10V/ PWM Dimming(0-10V,0-9V,0-5V,0-3.3V can be customized as request)
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%	

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	√
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	
EAC	Russia	ГОСТ Р МЭК 61347-1-2011 ГОСТ IEC 61347-2-13-2013 ГОСТ IEC 62493-2014 СТБ EH 55015-2006 ГОСТ IEC 61547-2013 ГОСТ 30804.3.2-2013 (IEC 61000-3-2:2009) ГОСТ 30804.3.3-2013 (IEC 61000-3-3:2008)	√

Insulation

Insulation	Input/Mains	DIMING	LED Output	Case
Input/Mains	/	Double	Double	Basic
DIMING	Double	/	Basic	Basic
LED Output	Double	Basic	/	Basic
Case	Basic	Basic	Basic	/

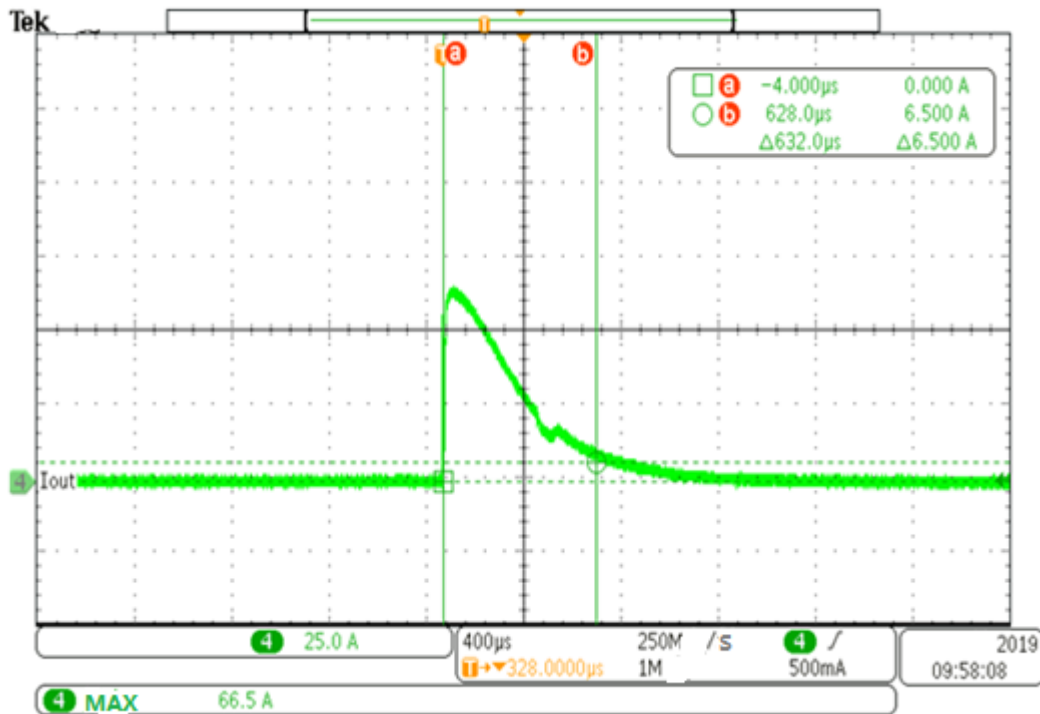
EMC COMPLIANCE

EMC 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	√
KC	South Korea	K61547	
		K00015	
PSE	Japan	J55015	
FCC	USA	FCC part 15	

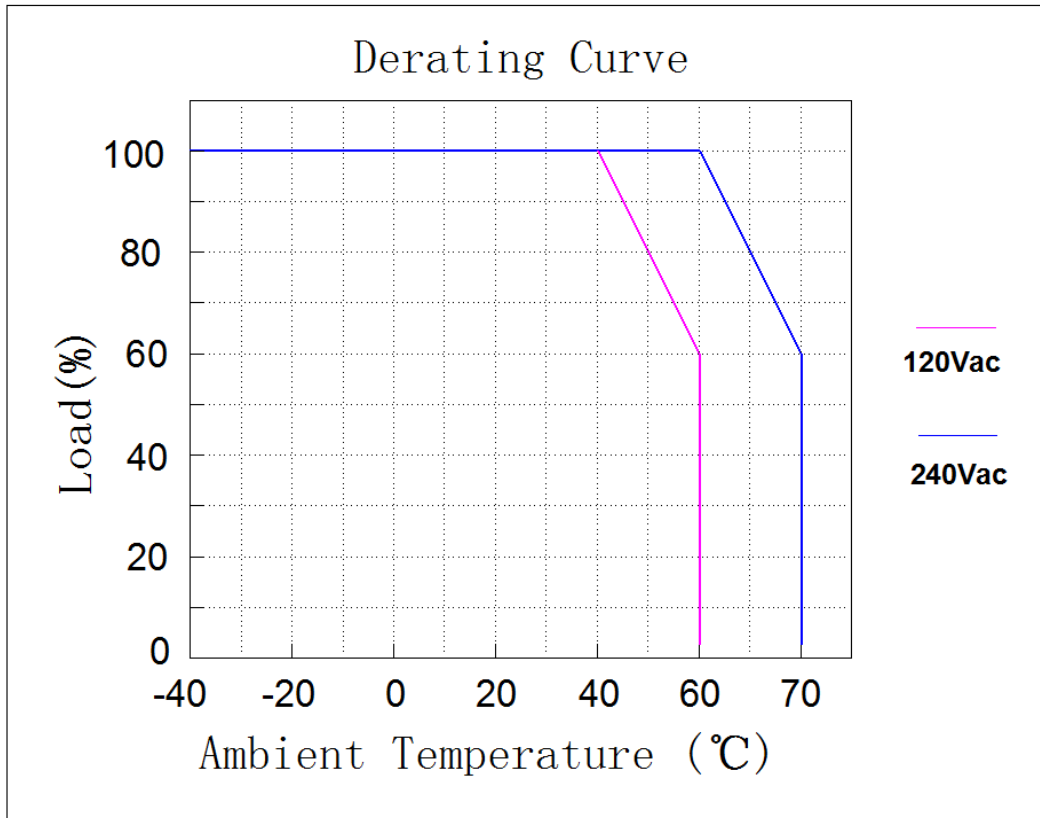
NOTE:

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.

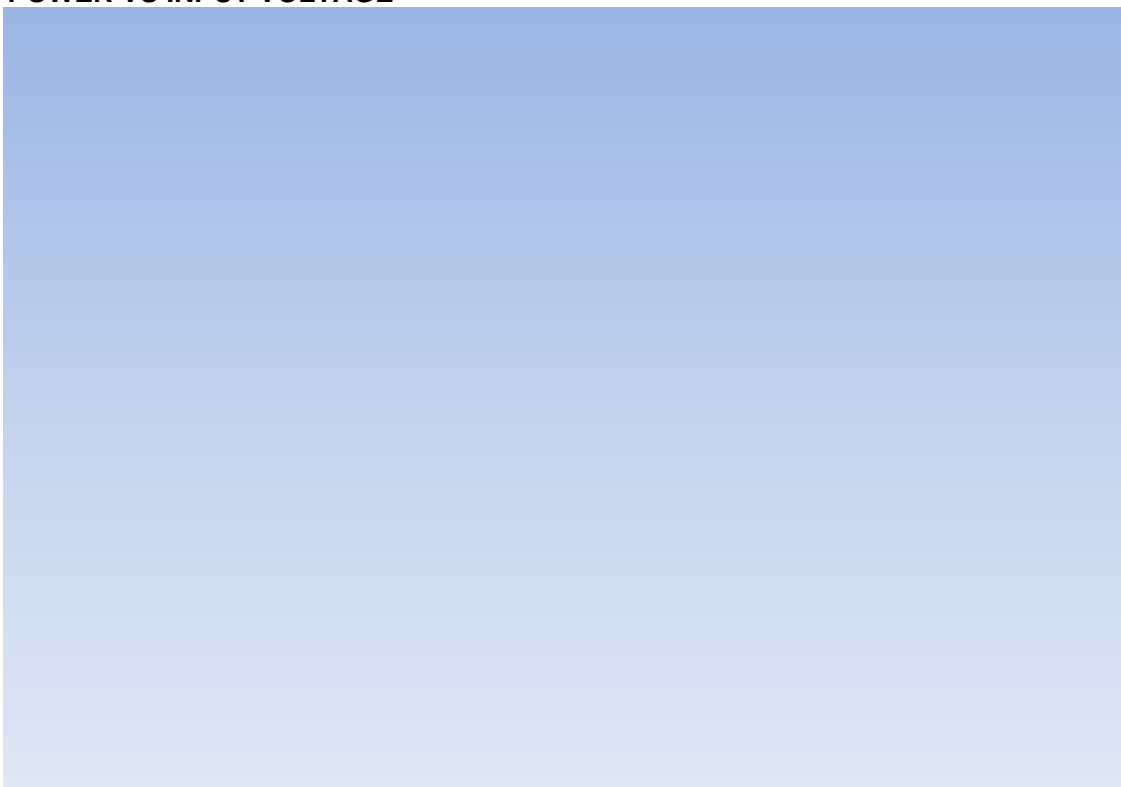
INRUSH CURRENT WAVEFORM



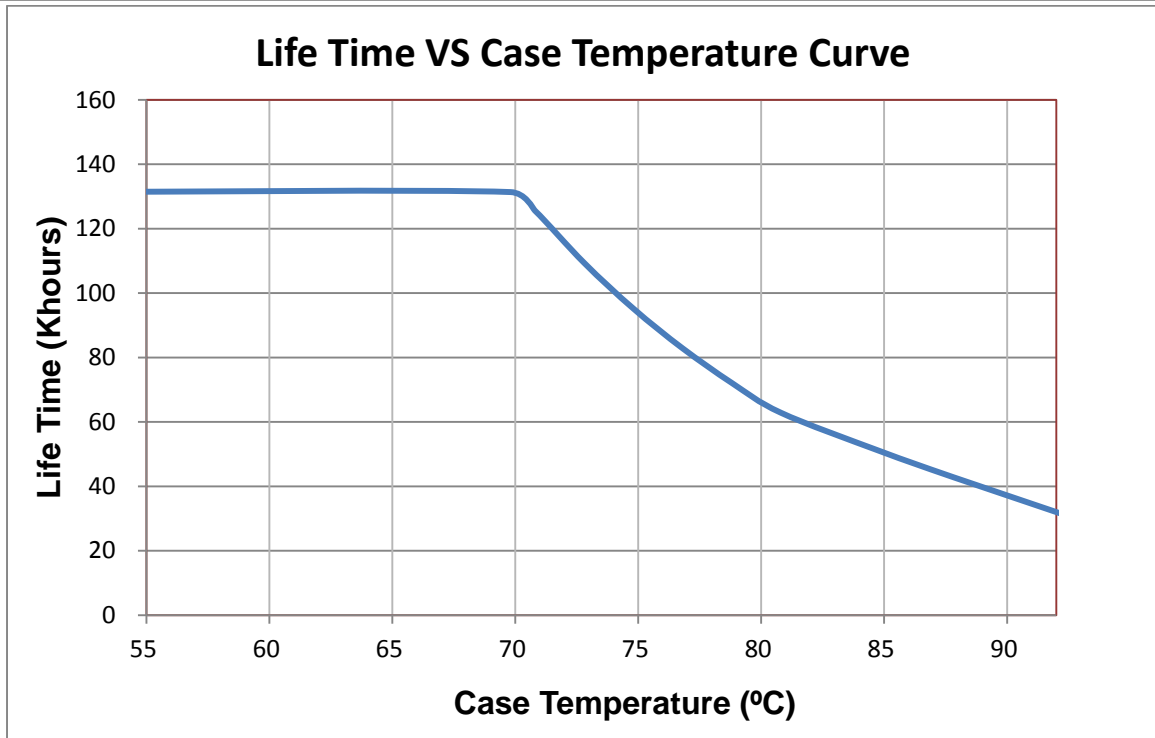
DERATING CURVE



OUTPUT POWER VS INPUT VOLTAGE

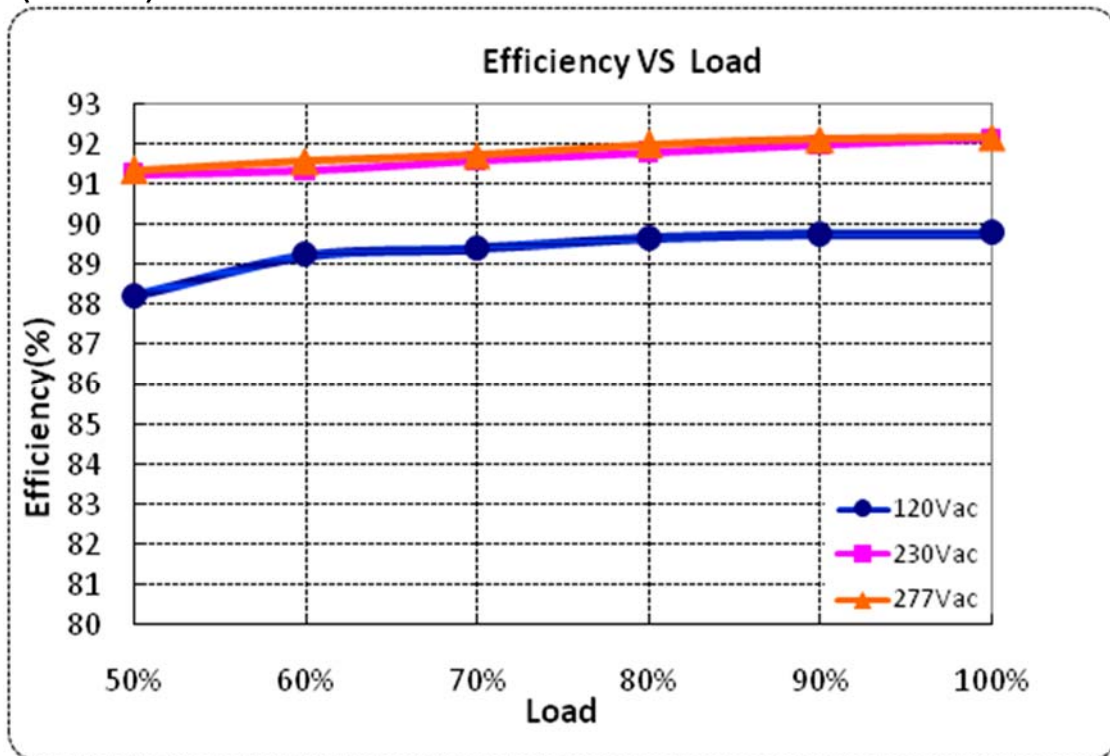


LIFETIME VS CASE TEMPERATURE

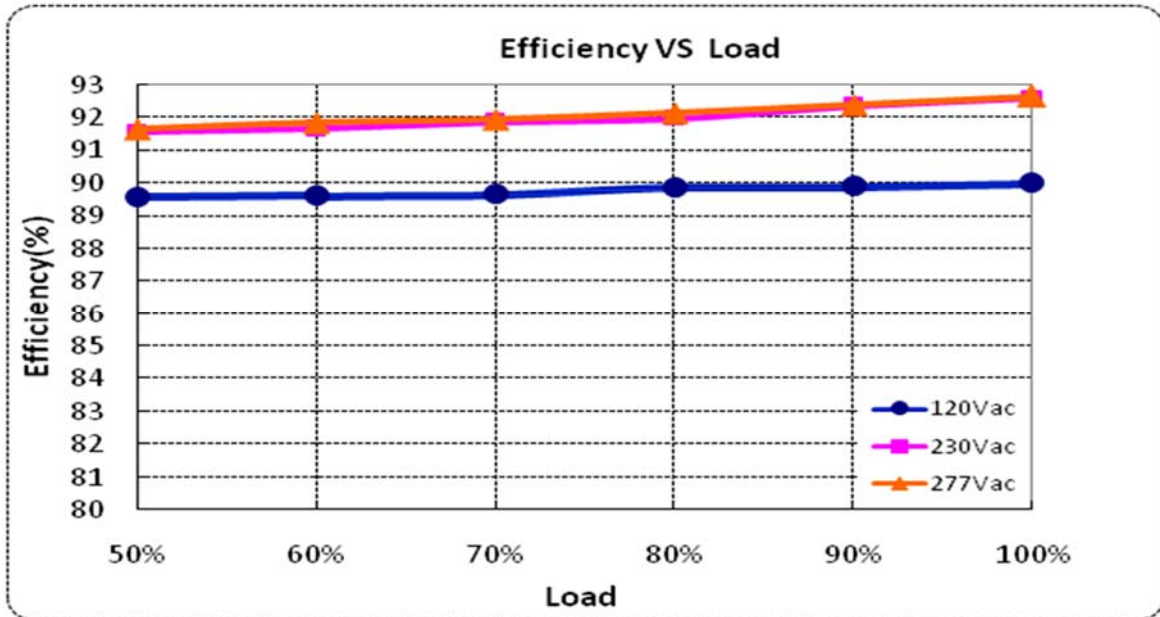


EFFICIENCY VS LOAD

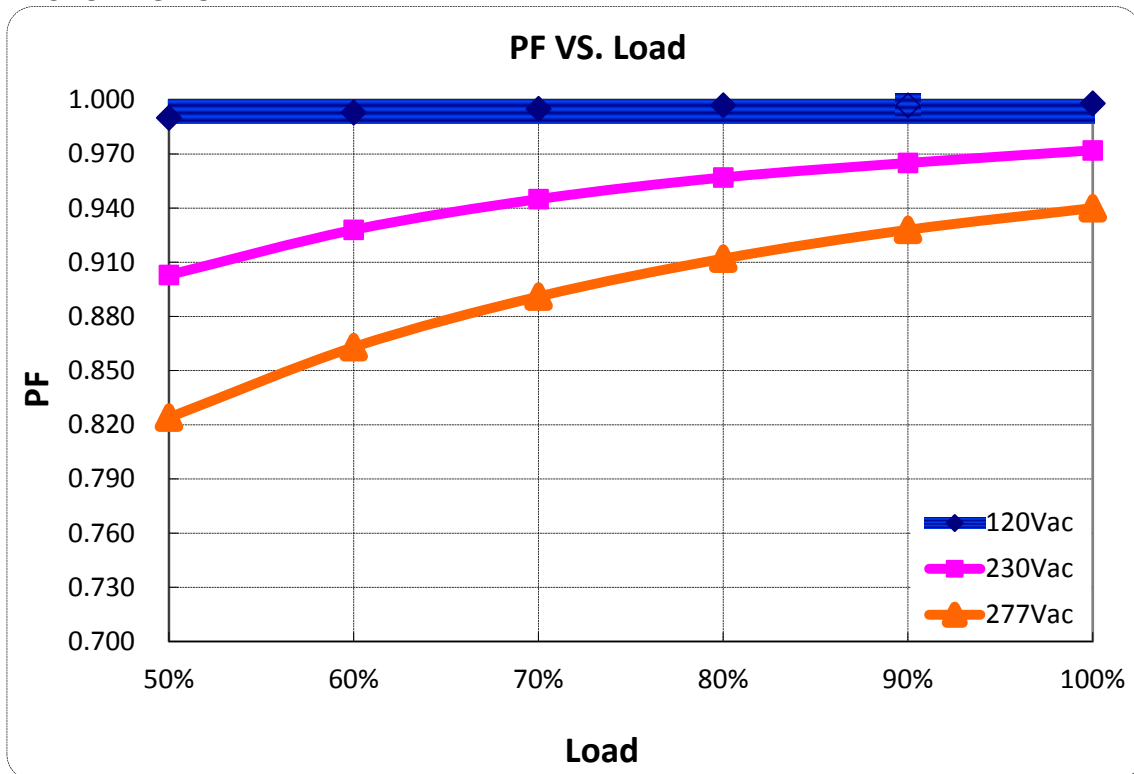
X6-320Y457 (I_o=0.70A)



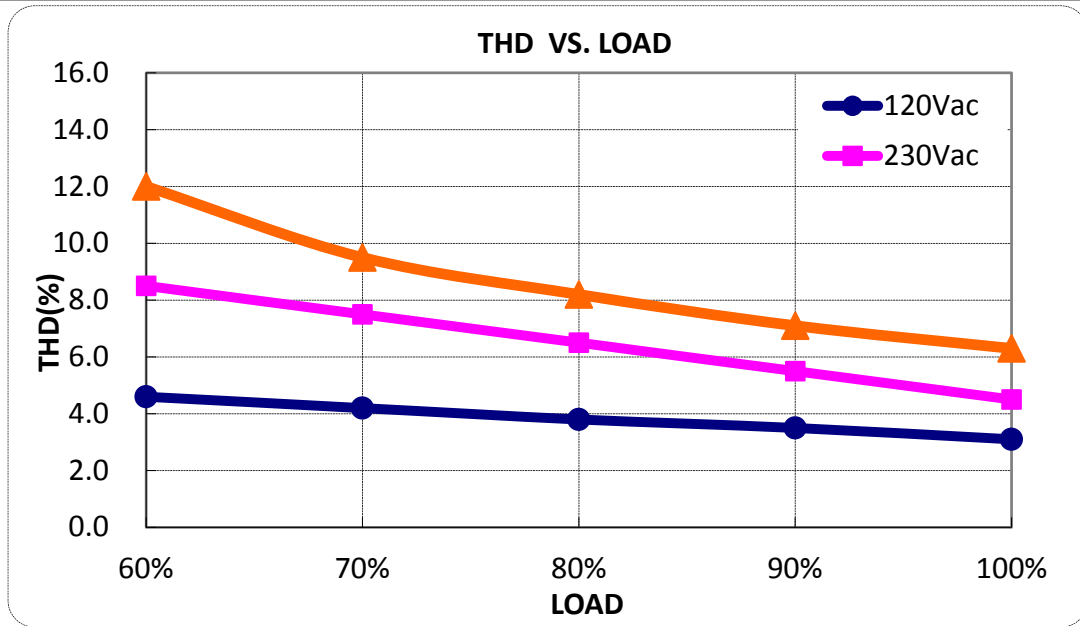
X6-320Y457
(I_o=1.10A)



POWER FACTOR VS LOAD



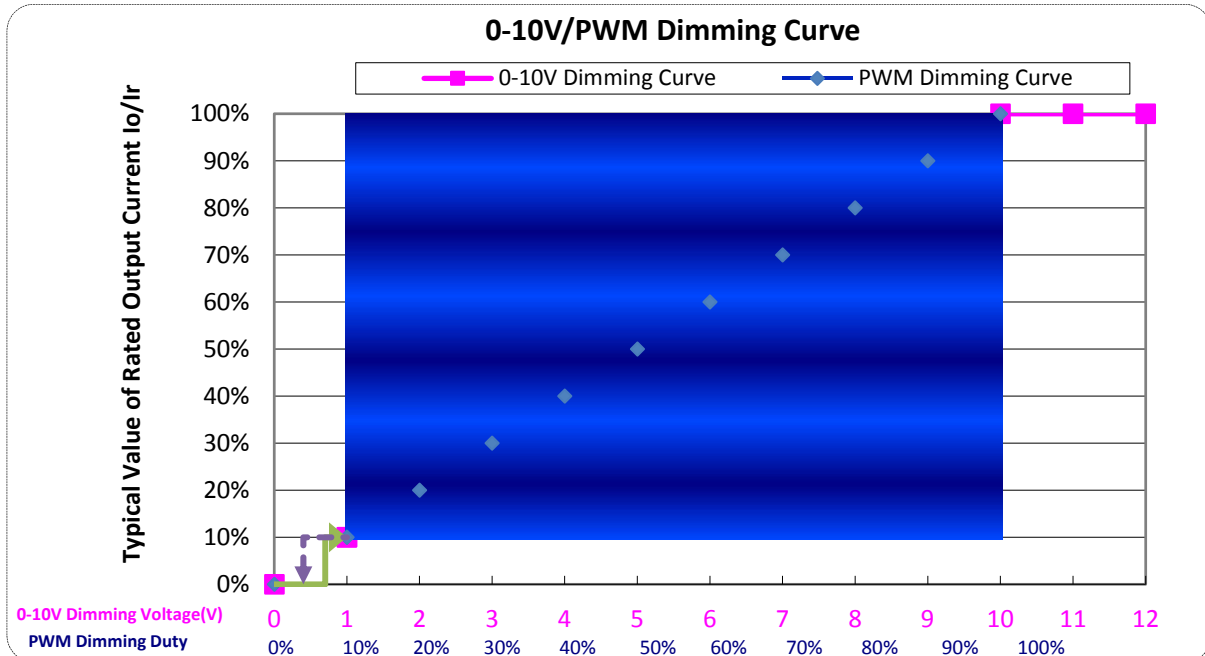
TOTAL HARMONIC DISTORTION



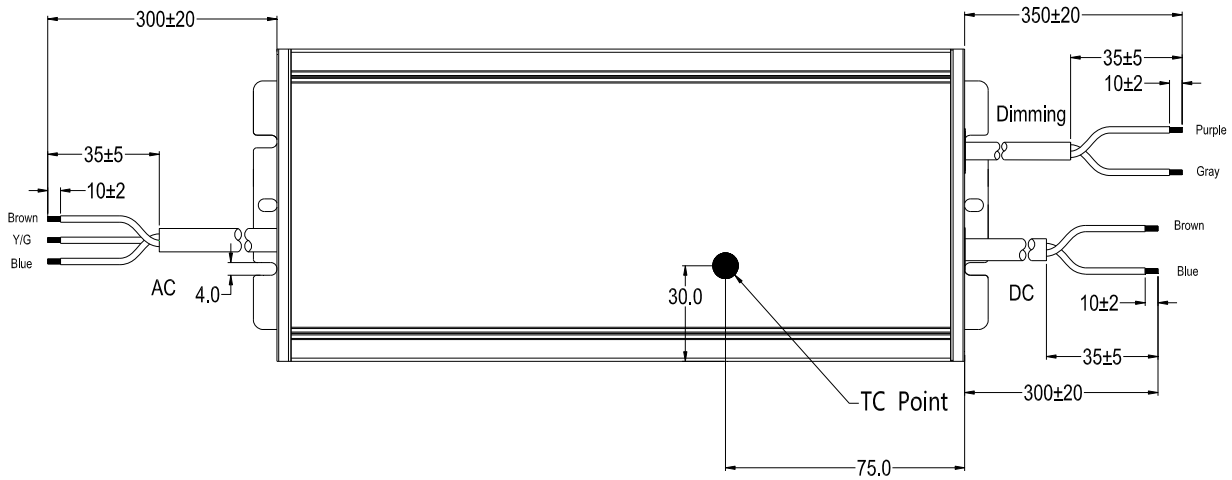
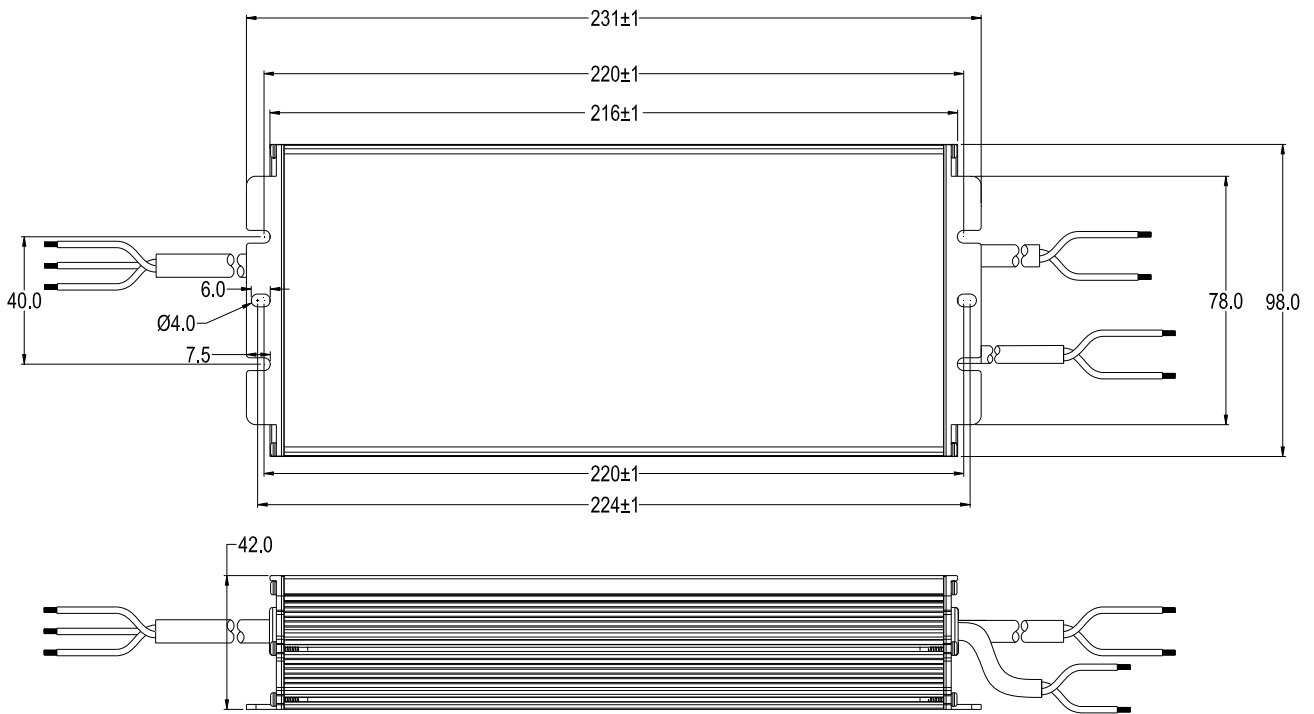
PROTECTIONS

Parameter	Notes
Over Temperature Protection	Decreases output current, returning to normal after over temperature is removed.
Short Circuit Protection	When the short circuit occurs, the input power is reduced and the product enters the constant current output mode or locked mode. When the short circuit is released, restart the input to recover.
Over Voltage Protection	Run into protection model when output voltage exceeds limit, and return to normal when the fault

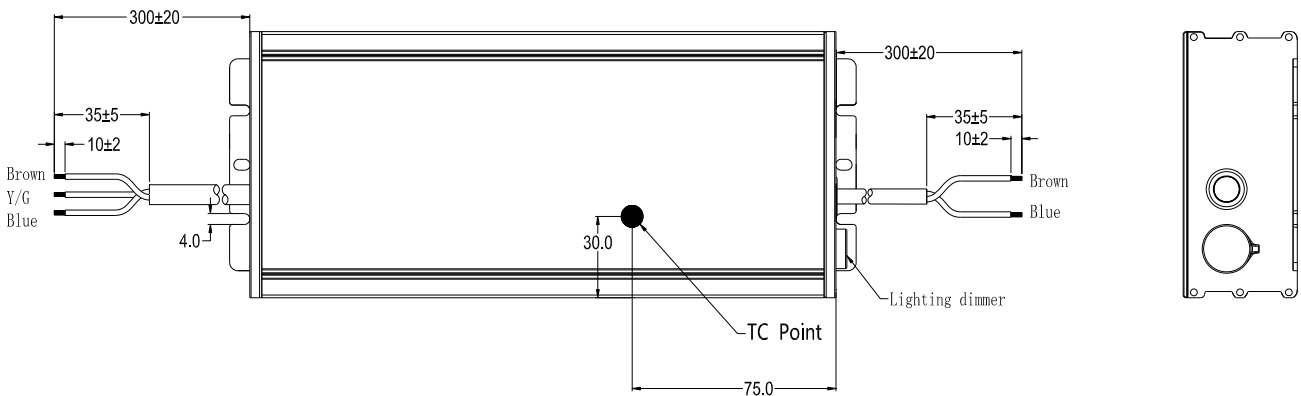
0-10V/PWM DIMMING



MECHANICAL OUTLINE X6-320M457 Types



X6-320V457 Types



Wire	Specification	Note
Input	SJOW 17AWG*3 external diameter: 8.3mm L=300±20mm; peel length 35mm, Tin-dip length 10mm	for CCC/CE/UL
Output	SJOW 17AWG*2 external diameter: 7.7mm L=300±20mm; peel length 35mm, Tin-dip length 10mm	for CCC/CE/UL
Dimming	UL2733 22AWG*2C external diameter: 5.45mm L=350±20mm; L=300±10mm, peel length 35mm, Tin-dip length 10mm	

LABEL

X6-320M457

73.00 mm

203.00 mm

PRI

■ L
Brown

■
Y/G

■ N
Blue

MOSO[®]

SHENZHEN MOSO ELECTRONICS TECHNOLOGY CO., LTD
No. 1061, Songbai Road, Xili, Nanshan, Shenzhen, CHINA
Suitable for Dry, Damp and Wet locations

X6-320M457 10 Years Guarantee

Electronic Control Gear for LED
Programmable Multi-dim

PRI

U_N = 100...240V~277V~

I_{Nmax} = 4200mA(100-240V~)

I_{Nmax} = 1600mA(277V~)

f_N = 50/60Hz

λ = 0.95

T_a = 50°C Input: 100-200V~

T_a = 60°C Input: 200-240V~, 277V~

T_c = 90°C

SEC

I_{rated} = 110...1100mA

U_{rated} = 228-457V

P_{max} = 320W

U_{max} = 480V

IP67

+ ■
Purple

- ■
Gray

+ ■
Brown

- ■
Blue

PROG & DIM

SEC

Specification for Approval

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