



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, Timer dimming. Dim-to-off;
- (M types) Constant lumen output
- 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;
- 5 years warranty.

Application

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

DESCRIPTION

The X6-320W 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
X6-320Y041Z	320	20-41	32-41	7.80-10.00	8.90	92%	0.96
X6-320Y062Z	320	38-62	42-62	5.20-7.50	6.7	92%	0.97
X6-320Y143Z	320	72-143	100-143	2.24-3.20	3.20	92%	0.97
X6-320Y230Z	320	115-230	152-230	1.39-2.10	2.10	92%	0.97
X6-320Y457Z	320	228-457	290-457	0.70-1.10	1.05	92%	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. Z=A12 means the driver with 12V/300mA auxiliary power supply.

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

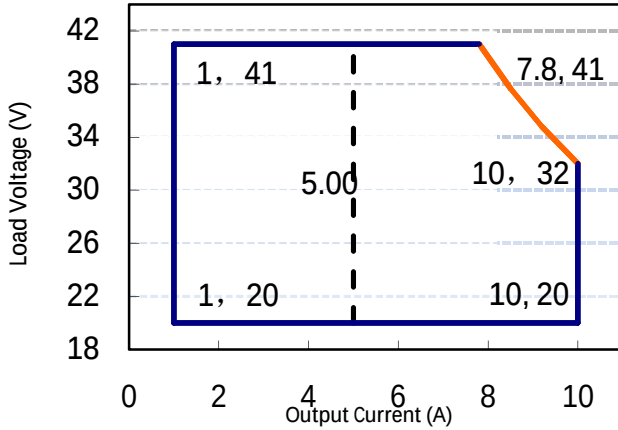
[3]. All specifications are measured at 25℃ ambient temperature, input voltage 230Vac, and the typical value tested by

full load, if no specific note.

OPERATING AREA I-V

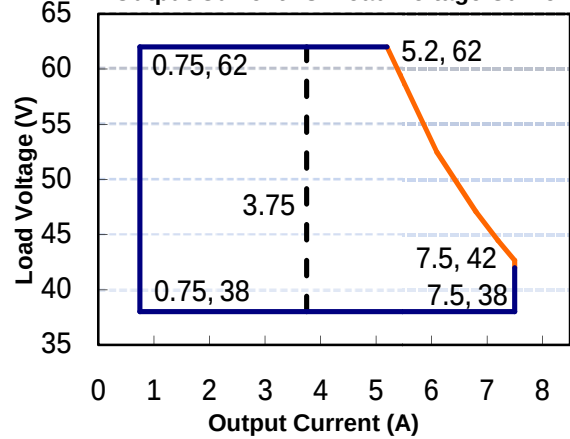
X6-320Y041Z

Output Current Vs Load Voltage Curve



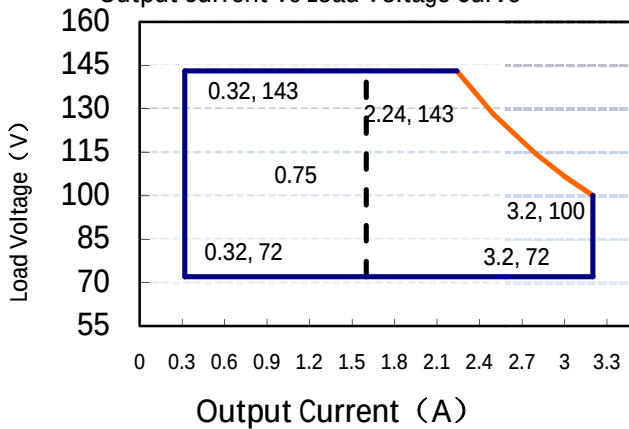
X6-320Y062Z

Output Current vs. Load Voltage Curve



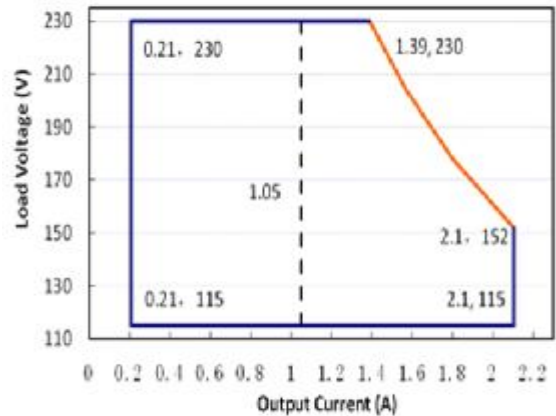
X6-320Y143Z

Output Current Vs Load Voltage Curve



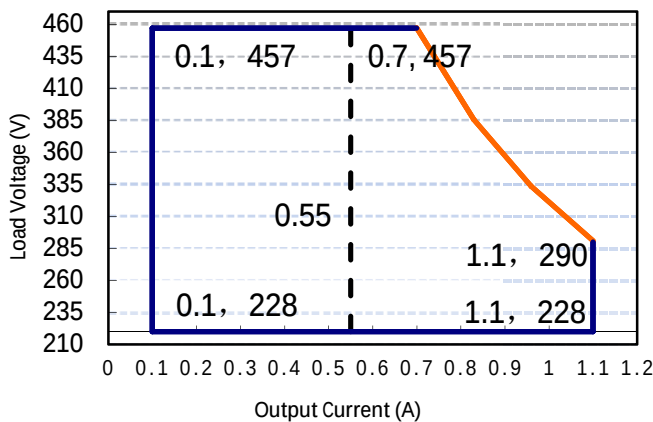
X6-320Y230Z

Output Current Vs Load Voltage Curve



X6-320Y457Z

Output Current Vs Load Voltage Curve



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	-	-	0.75mA	277Vac/60Hz
Input AC Current	-	-	4.2A	100-277Vac & full load
Inrush Current	-	-	100A	230Vac & full load
Standby Power Consumption			5W	Dim to off
Power Factor	0.97	0.99	-	115Vac, 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, 50%-100% load
	-	-	15%	277Vac, 50-60Hz, 70%-100% load

OUTPUT SPECIFICATIONS

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%	-	+5%	
Output Current Setting Range (A)				The 'M type' adjustable lout range: 10%-100% I _{max} ,
X6-320Y041Z	5.00		10.0	
X6-320Y062Z	3.75		7.50	
X6-320Y143Z	1.60	-	3.20	
X6-320Y230Z	1.05		2.10	
X6-320Y457Z	0.55		1.10	
Output Current Setting Range with Constant Power				
X6-320Y041Z	7.80		10.0	
X6-320Y062Z	5.20		7.50	
X6-320Y143Z	2.24	-	3.20	
X6-320Y230Z	1.39		2.10	
X6-320Y457Z	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.
AUX. Power(Optional)	10.8V	12V	13.2V	Only for A12 version
	0	-	300mA	
Startup Overshoot Current	-	-	10%	100~277Vac & 100% Load, load is LED
No Load Output Voltage				
X6-320Y041Z			60	
X6-320Y062Z	-	-	80	
X6-320Y143Z			160	

X6-320Y230Z			260	
X6-320Y457Z			480	
Line Regulation	-1%	-	1%	25°C±10°C ambient temperature, input voltage changes from 100Vac to 277Vac.
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	115Vac, 100% load
	-		2S	230Vac, 100% load

GENERAL SPECIFICATIONS

Parameter		Min.	Typ.	Max.	Notes
Efficiency @120Vac					Measured at full load and 25°C ambient temperature
X6-320Y041Z					
I _o =7.8		86.9%	88.9%		
I _o =10		86.6%	88.6%		
X6-320Y062Z					
I _o =5.20		87%	89%		
I _o =7.50		86%	88%		
X6-320Y143Z					
I _o =2.24		87%	89%		
I _o =3.20		87%	89%		
X6-320Y230Z					
I _o =1.39		87%	89%		
I _o =2.10		87%	89%		
X6-320Y457Z					Measured at full load and 25°C ambient temperature
I _o =0.70		86%	88%		
I _o =1.10		85%	87%		
Efficiency @230Vac					
X6-320Y041Z					
I _o =7.8		90%	92%		
I _o =10		90%	92%		
X6-320Y062Z					
I _o =5.20		90%	92%		
I _o =7.50		90%	92%		
X6-320Y143Z					
I _o =2.24		91%	93%		
I _o =3.20		91%	93%		
X6-320Y230Z					
I _o =1.39		90%	92.5%		
I _o =2.10		90%	92.5%		
X6-320Y457Z					
I _o =0.70		90%	92%		
I _o =1.10		90%	92%		
Efficiency @277Vac					Measured at full load and 25°C ambient temperature
X6-320Y041Z					
I _o =7.8		90.5%	92.5%		
I _o =10		90.5%	92.5%		
X6-320Y062Z					
I _o =5.20		91%	93%		
I _o =7.50		91%	93%		
X6-320Y143Z					
I _o =2.24		91.5%	93.5%		
I _o =3.20		91.5%	93.5%		
X6-320Y230Z					
I _o =1.39		90%	92.5%		
I _o =2.10		90%	92.5%		
X6-320Y457Z					
I _o =0.70		91%	93%		
I _o =1.10		91%	93%		
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		50MΩ	-	-	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	-	230Vac&100% load, 75°C case temperature, refer to lifetime curve for details
Ambient Temperature		-40°C		+60°C	230Vac&100% load
Operating Case Temperature for Safety Tc_s		-40°C	-	+90°C	
Operating Case Temperature for Warranty Tc_s		-40°C	-	+75°C	5 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: 18Kg			

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	X6-320M041Z X6-320M062Z X6-320M143Z X6-320M230Z X6-320M457Z	10% I _{max}	-	100% I _{max}	I _{max} =10.0A I _{max} =7.50A I _{max} =3.20A I _{max} =2.10A I _{max} =1.10A
	X6-320M041Z X6-320M062Z X6-320M143Z X6-320M230Z X6-320M457Z	1.00 0.75 0.32 0.21 0.11	-	10.0 7.50 3.20 2.10 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%	

SAFTY STANDARDS

Safety Category	Country / Territory	Standards	Approved
CCC	China	GB19510.1, GB19510.14	√
CE	Europe	EN61347-1, EN61347-2-13	√
		EN62493	√

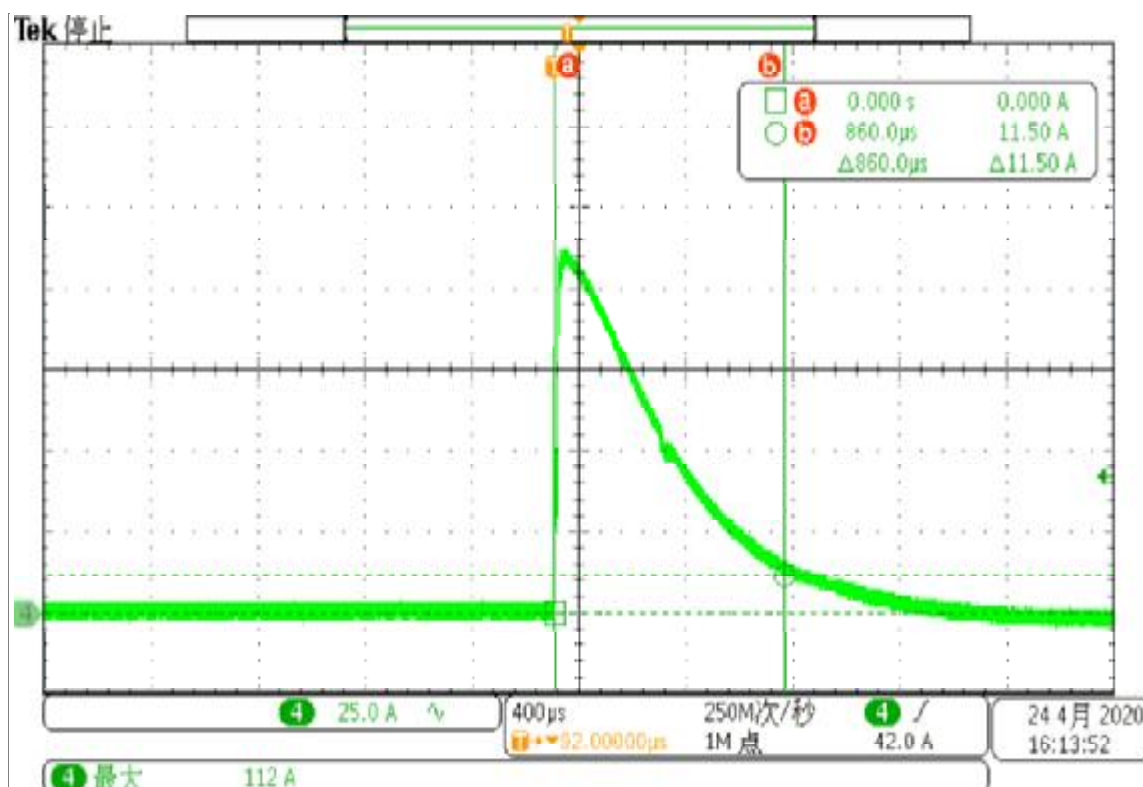
ENEC		EN62384	√
CB	CB Countries	IEC61347-1, IEC61347-2-13	√
BIS	India	IS 15885(PART 2/SEC 13)	√
UL	USA	UL 8750	√
CUL	Canada	CSA C22.2 No.250.13	√
KC	South Korea	K61347-1, K61347-2-13	
PSE	Japan	J61347-1, J61347-2-13	
SAA	Australia	AS/NZS IEC 61347.2.13	
		AS/NZS 61347.1	

EMC COMPLIANCE

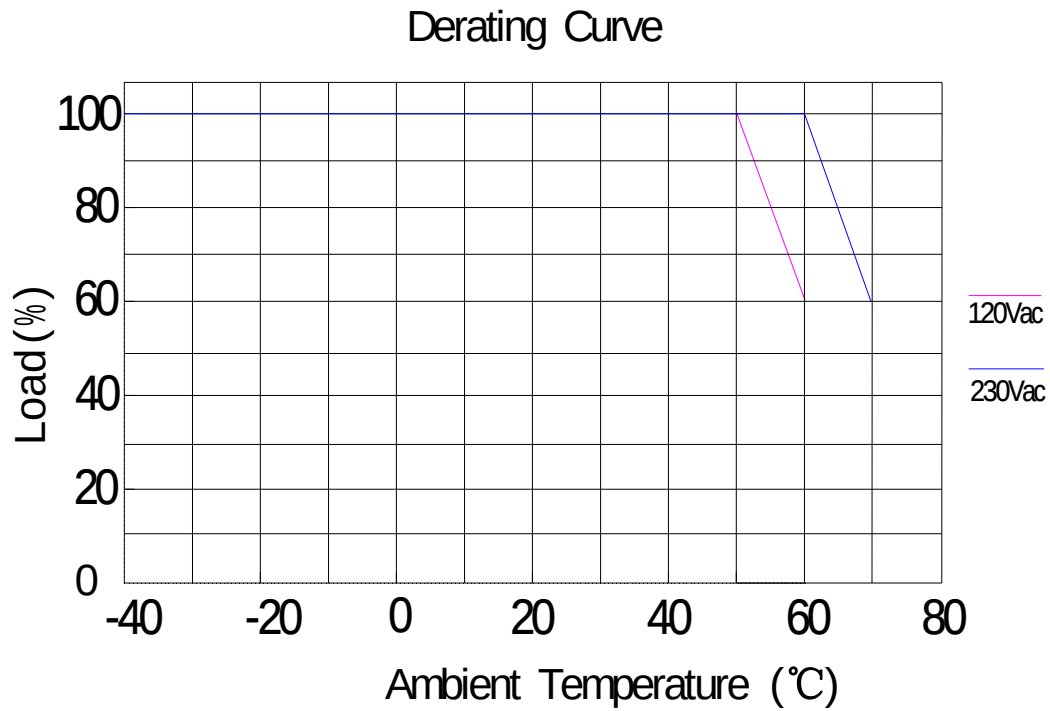
EMC Category	Country / Territory	Standards	Approved
CCC	China	GB/T 17743, GB 17625.1	√
CE	Europe	EN 55015	√
		EN 61000-3-2, EN 61000-3-3	√
		EN61000-4-2,3,4,5,6,11	√
		EN 61547	√
KC	South Korea	K61547	
		K00015	
PSE	Japan	J55015	
FCC	USA	FCC part 15	

NOTE:

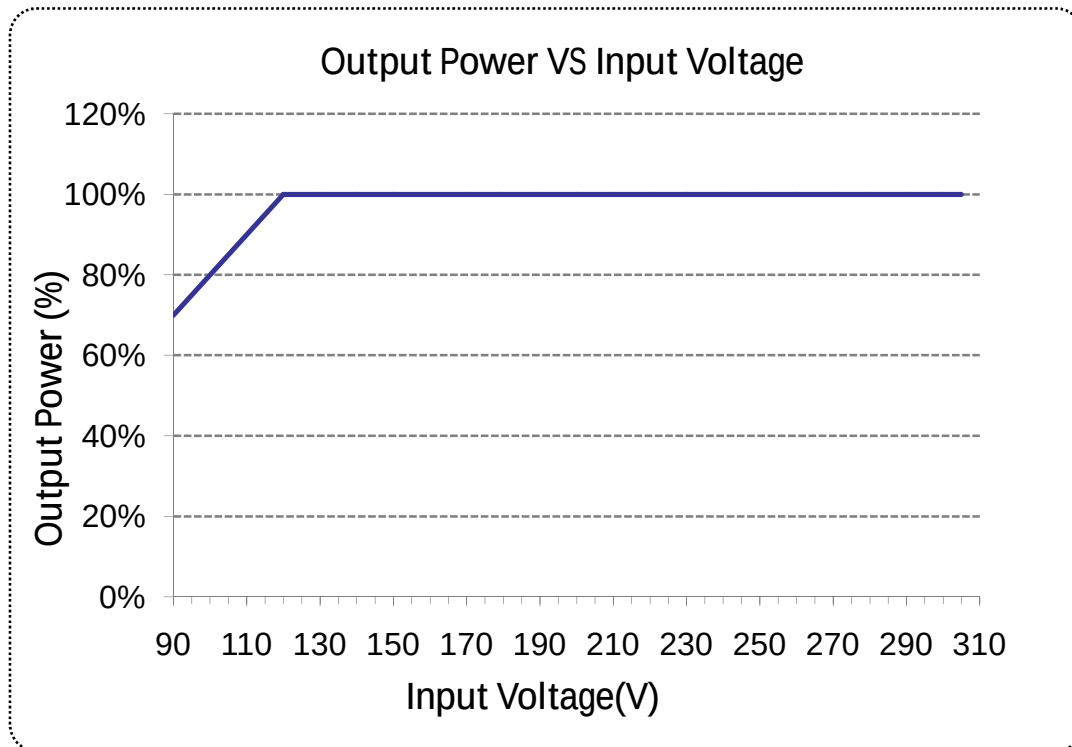
This LED driver meets the EMI specifications above, but as a component of a luminaire, end customer need to identify the EMI performance of a luminaire including LED driver, other devices connected to the driver and on the luminaire itself.

INRUSH CURRENT WAVEFORM


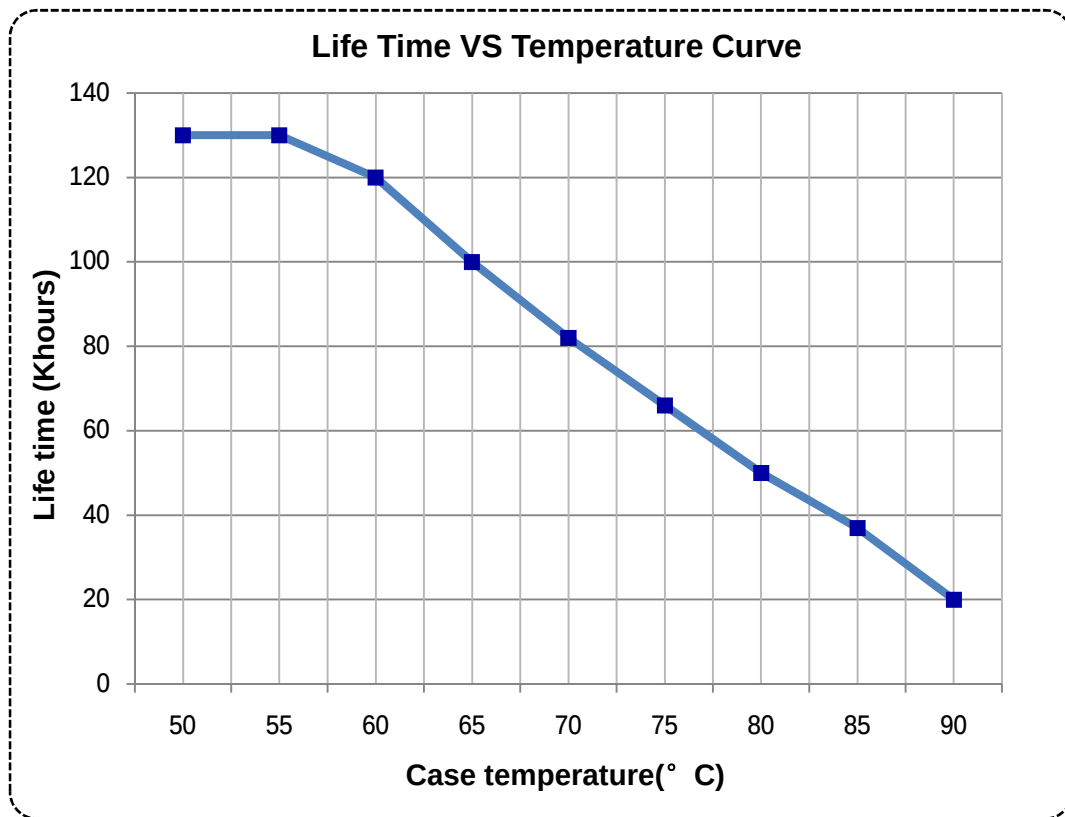
DERATING CURVE



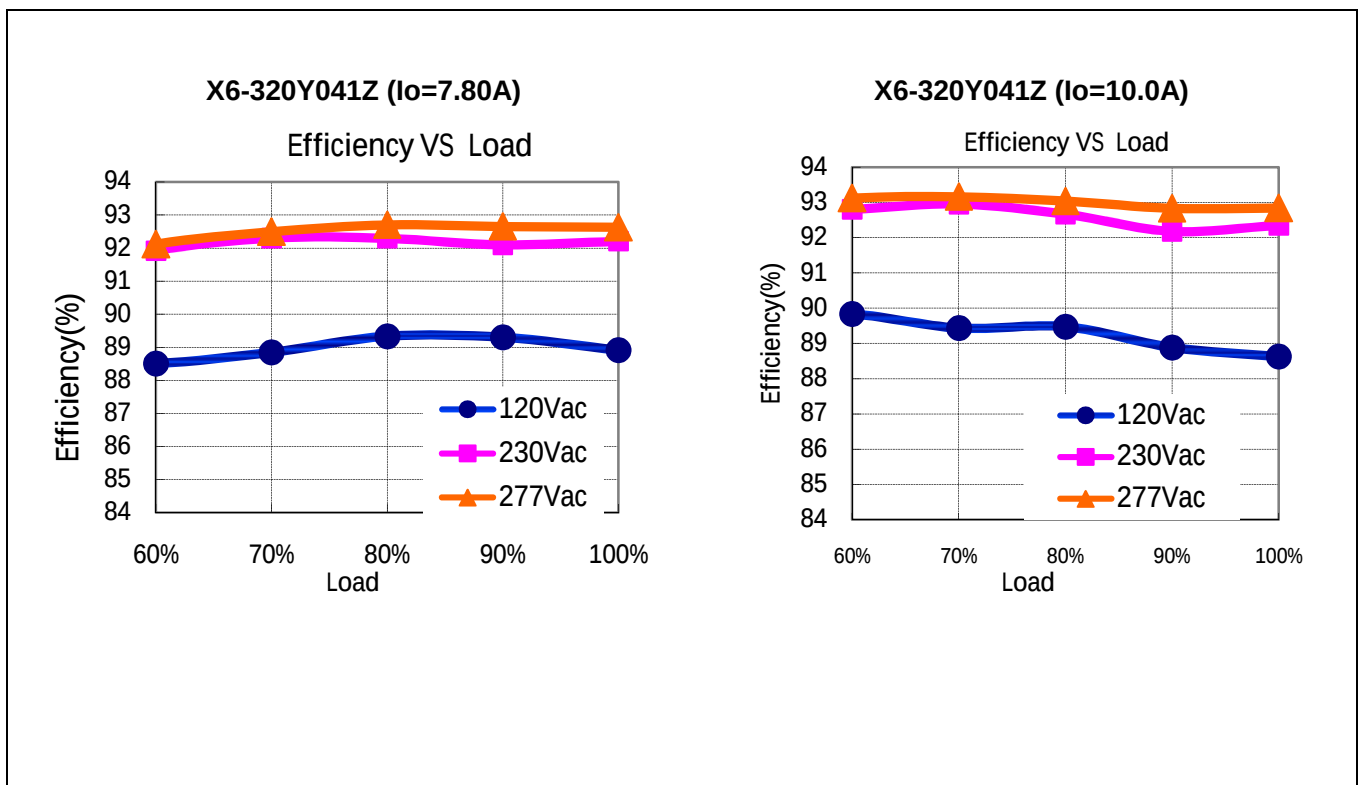
OUTPUT POWER VS INPUT VOLTAGE

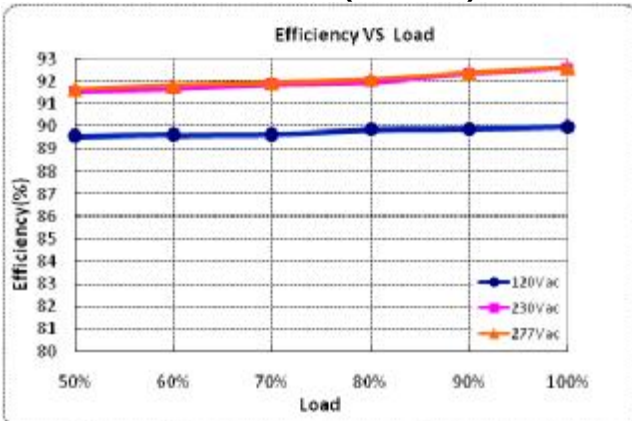
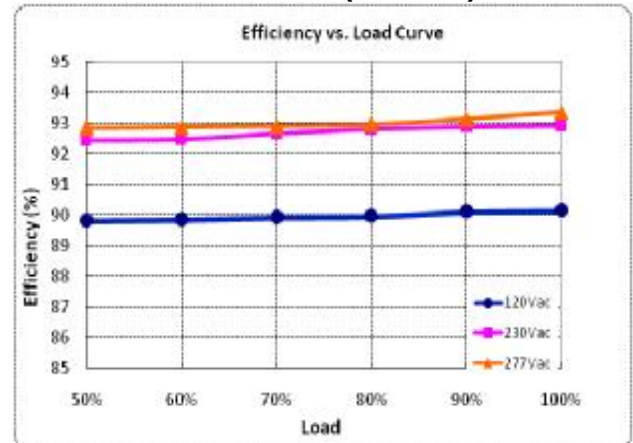
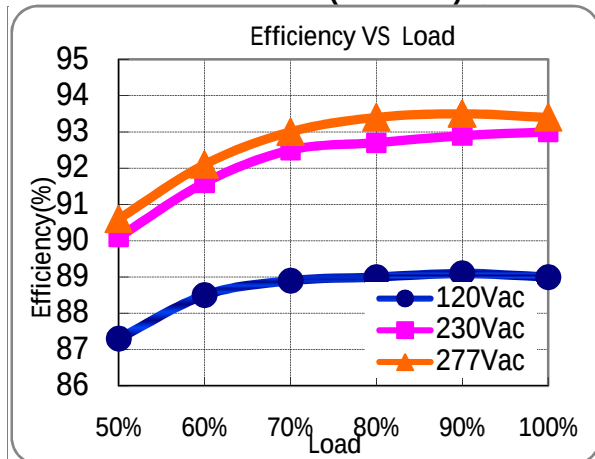
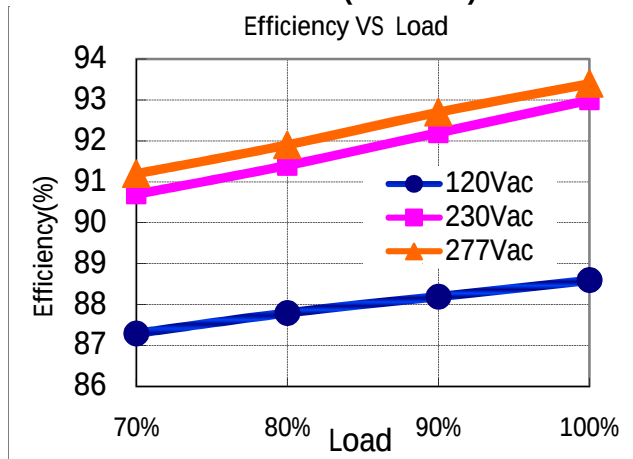
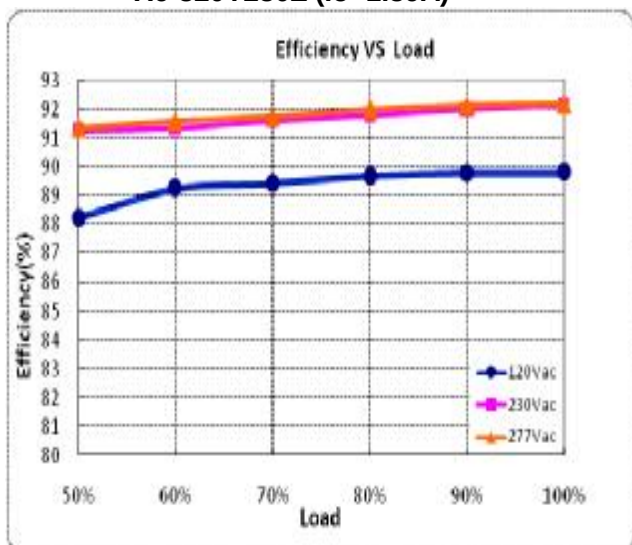
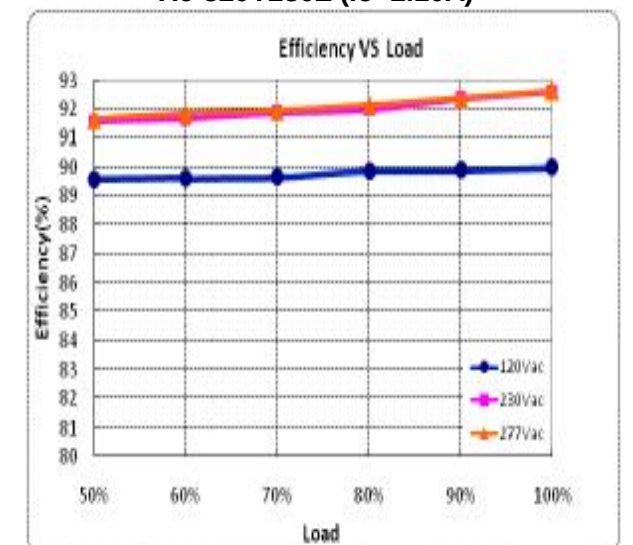


LIFETIME VS CASE TEMPERATURE

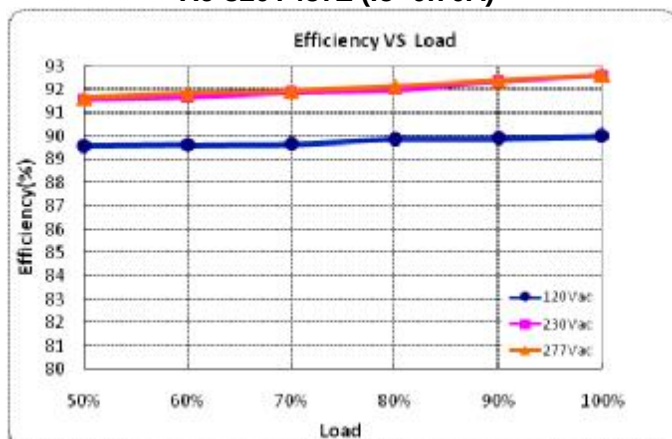


EFFICIENCY VS LOAD

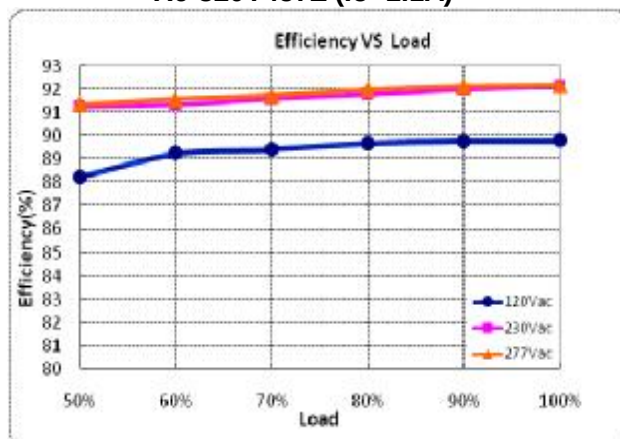


X6-320Y062Z (Io=5.20A)

X6-320Y062Z (Io=7.50A)

X6-320Y143Z (Io=2.24A)

X6-320Y143Z (Io=3.20A)

X6-320Y230Z (Io=1.39A)

X6-320Y230Z (Io=2.10A)


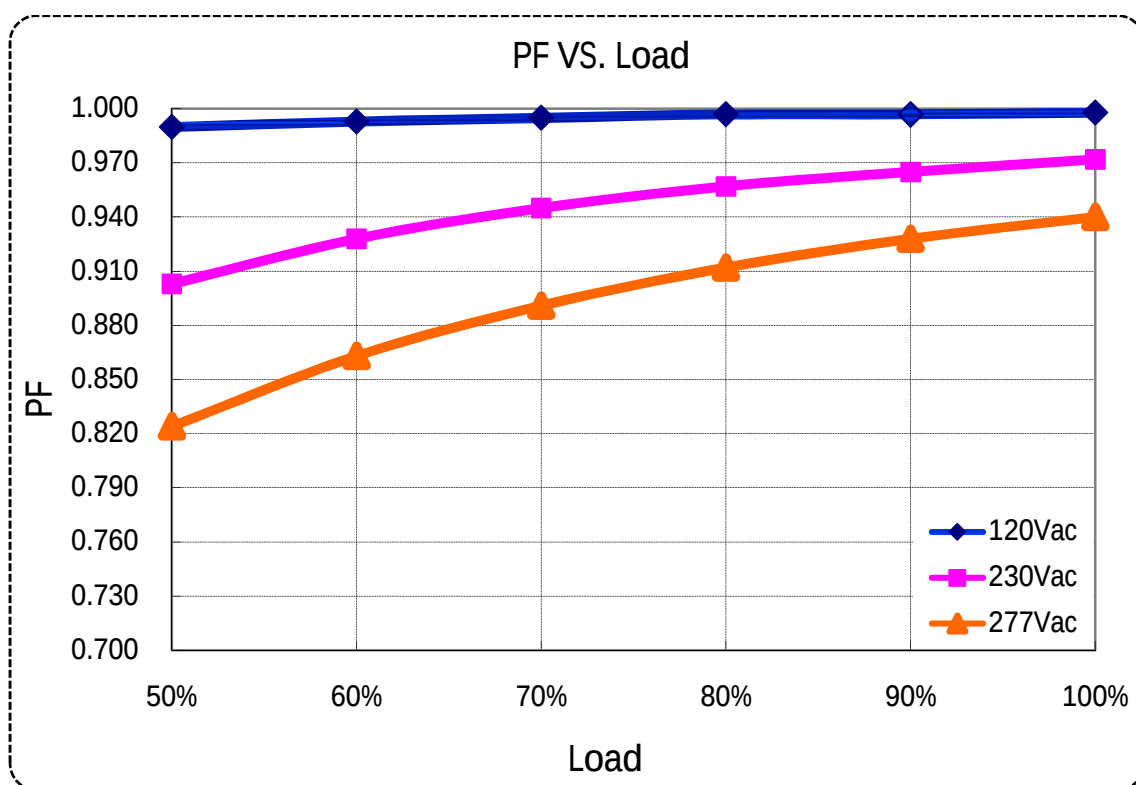
X6-320Y457Z (Io=0.70A)

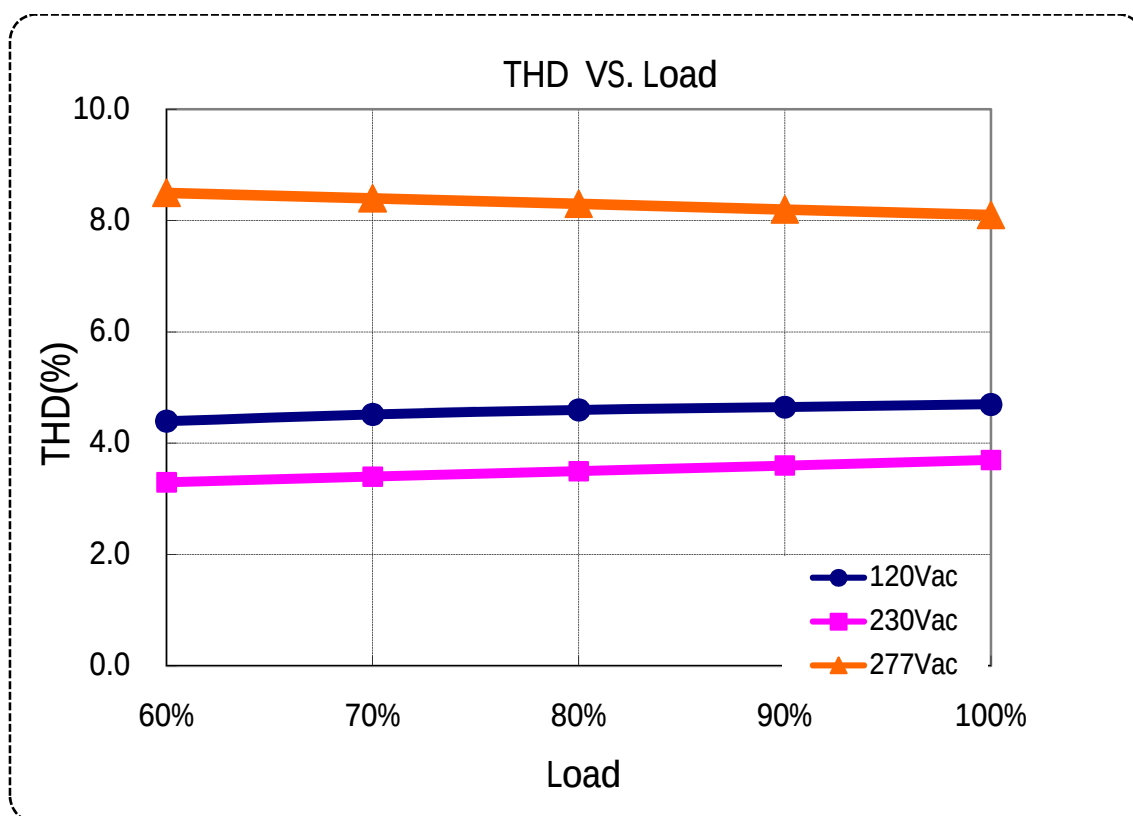


X6-320Y457Z (Io=1.1A)



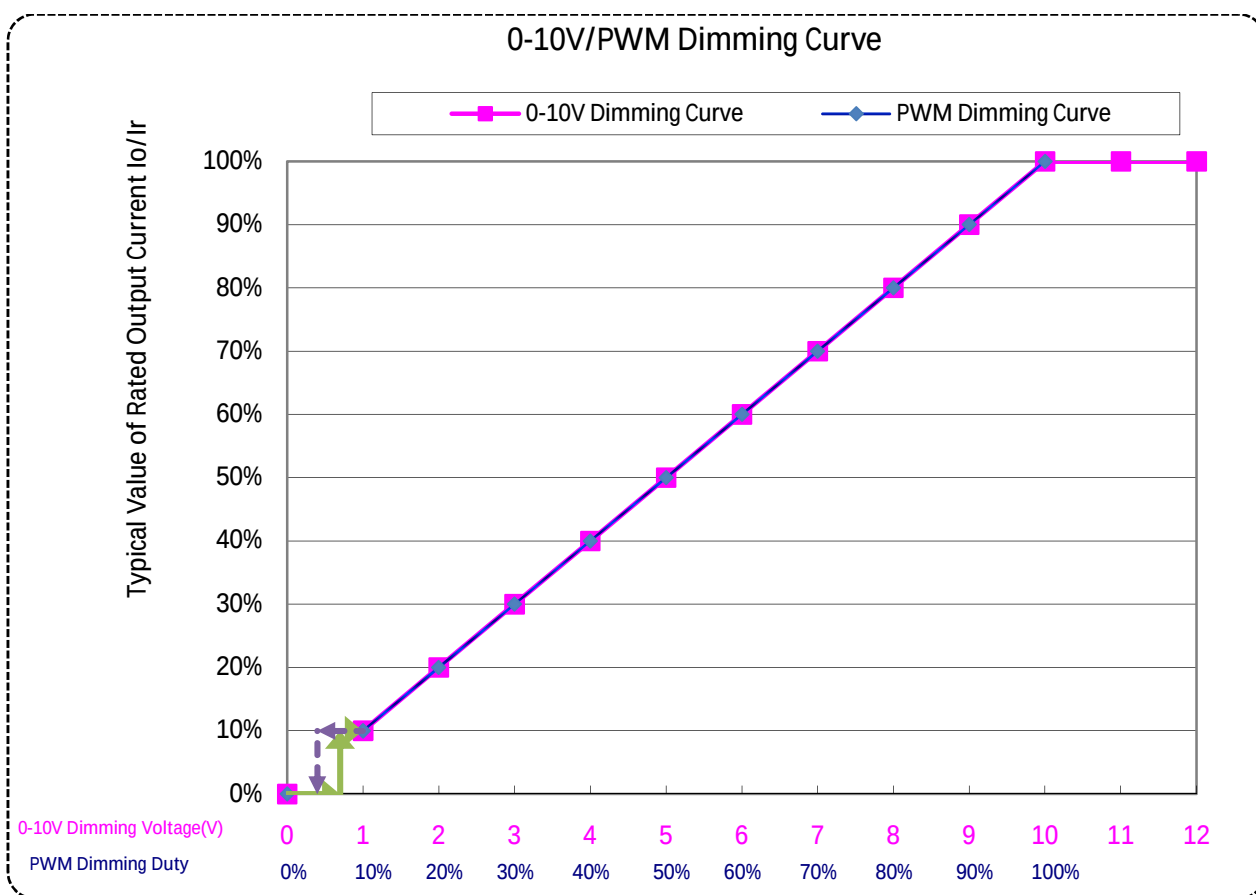
POWER FACTOR VS LOAD



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.
Over Voltage Protection	Run into protection model when output voltage exceeds limit, and return to normal when the fault

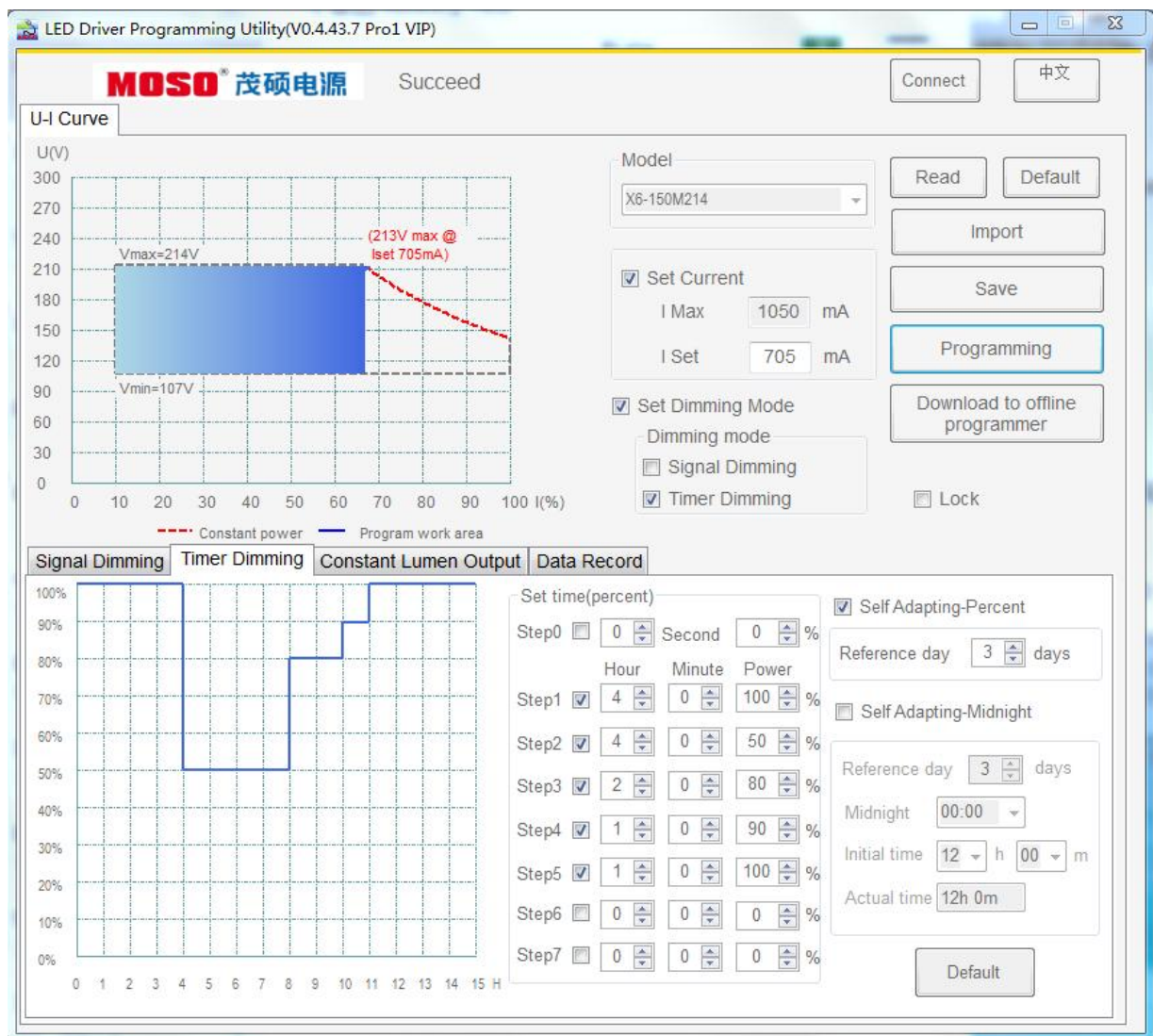
0-10V/PWM DIMMING



Programming Connection Diagram



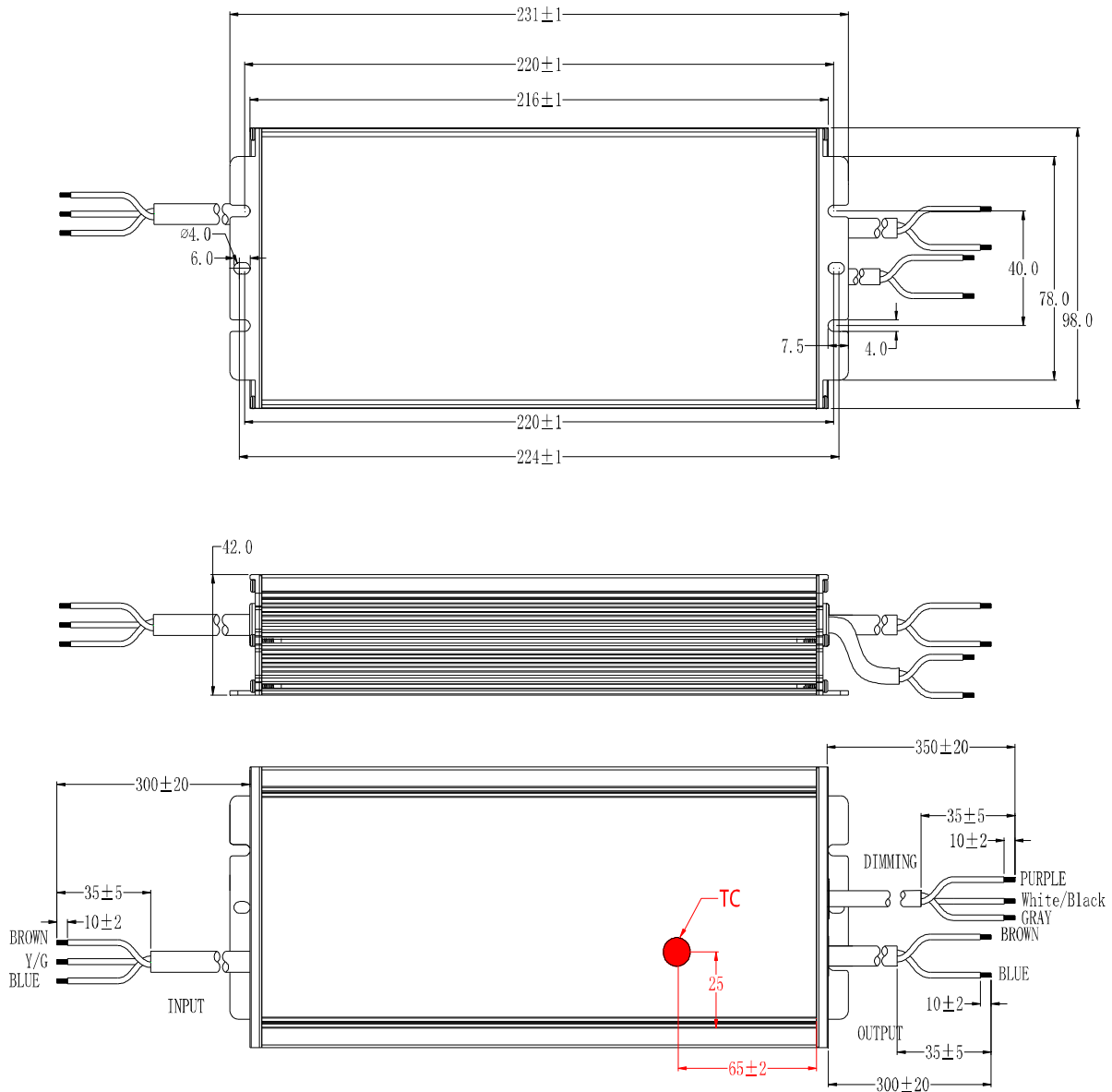
Software programming interface



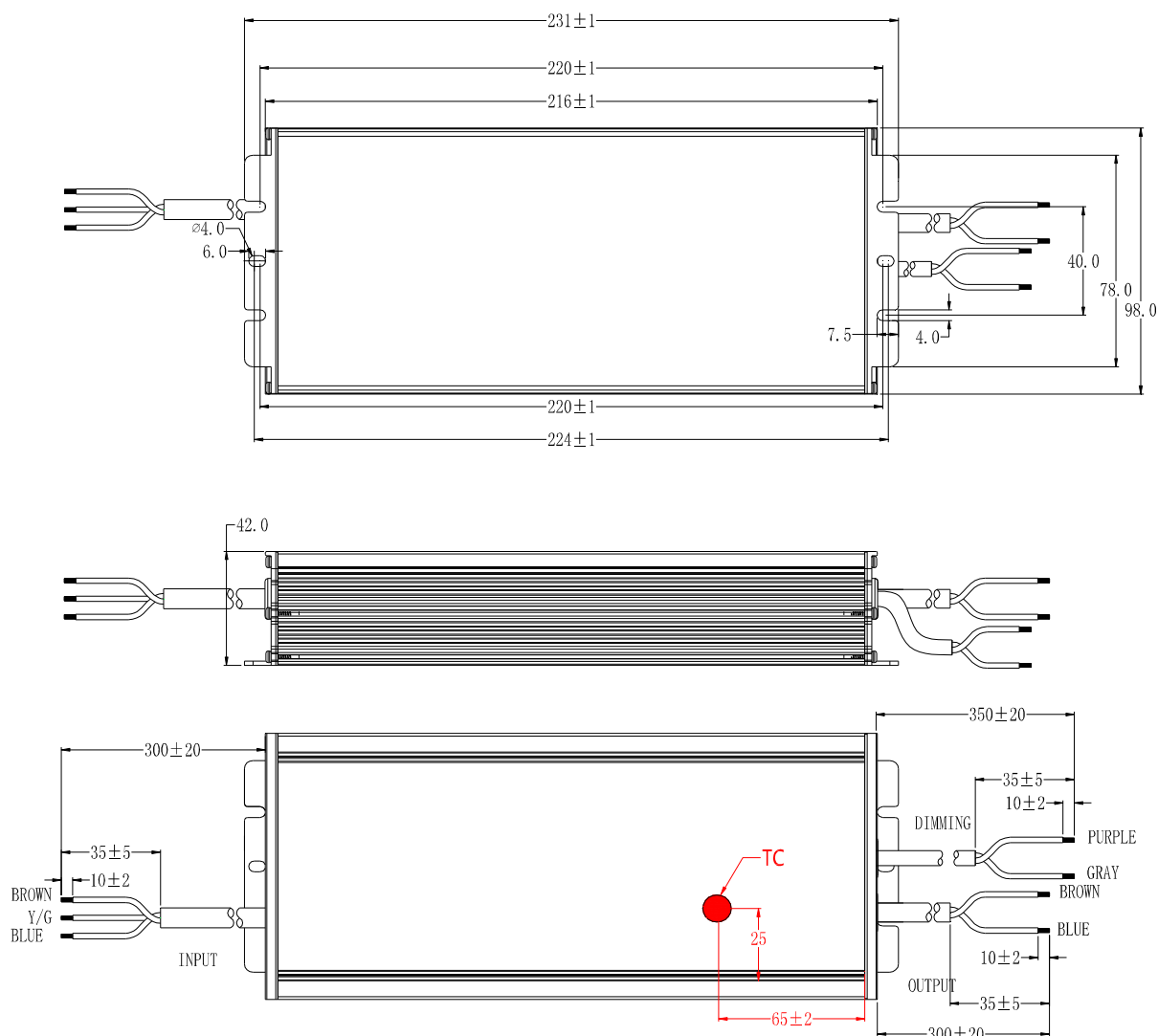
Please refer to **MOSO LED Driver Programming software installation and use instructions** for more details.

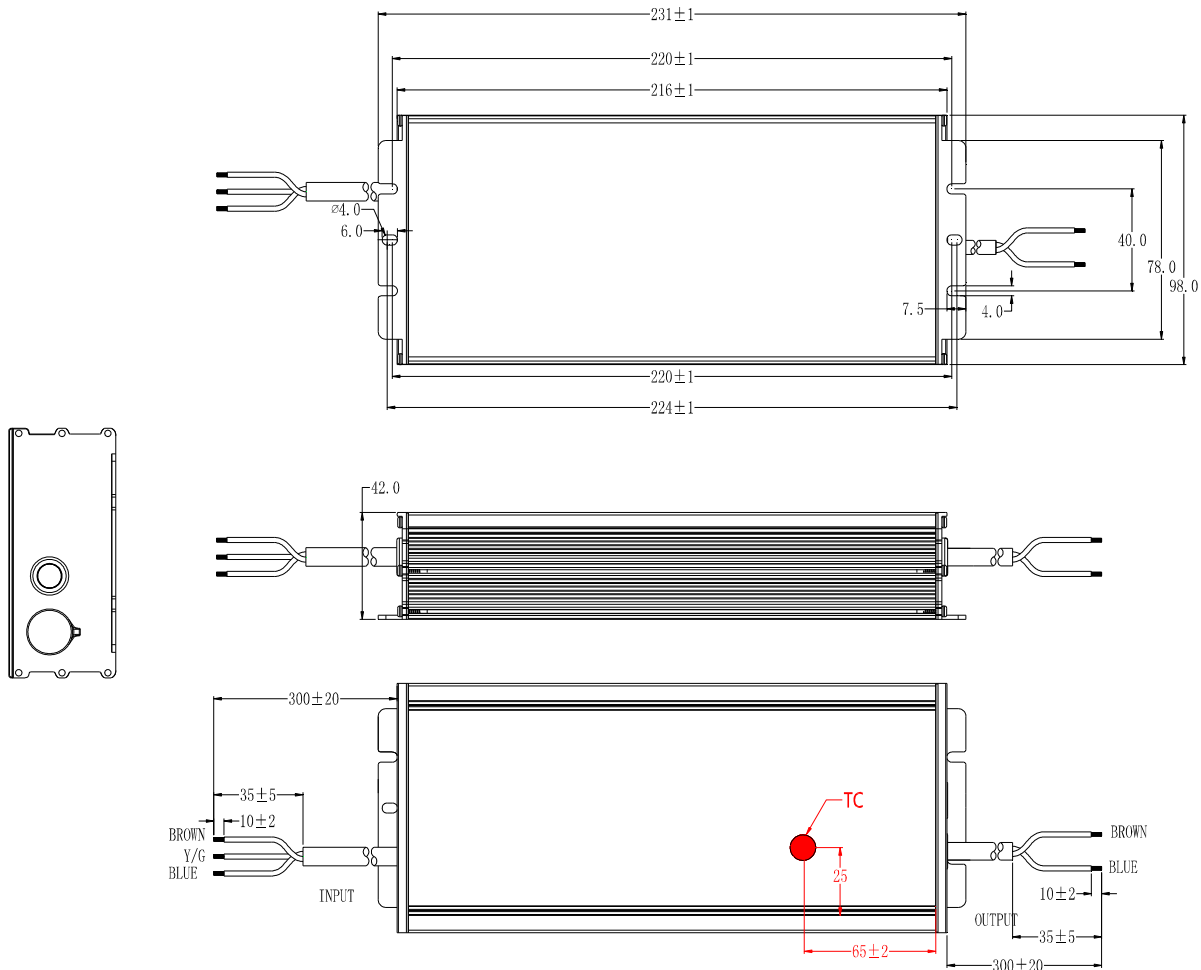
MECHANICAL OUTLINE

X6-320M A12 types



X6-320M types



X6-320V types


Wire	Specification	Note
Input	SJOW 17AWG*3 external diameter: 8.3mm L=300±20mm; L=300±20mm; peel length 35mm, Tin-dip length 10mm	for CCC/CE/UL except X6-320Y041
Output	SJOW 17AWG*2 external diameter: 7.7mm L=300±20mm; L=300±20mm; peel length 35mm, Tin-dip length 10mm	for CCC/CE/UL except X6-320Y041
Input	SJOW 17AWG*3 external diameter: 8.3mm L=300±20mm; L=300±20mm; peel length 35mm, Tin-dip length 10mm	for CCC/CE/UL except X6-320Y041
Output	3C+VDE 2*1.5mm ² (H07RN-F 60245 IEC6) external diameter: 9.6mm L=300±20mm; L=300±20mm; peel length 35mm, Tin-dip length 10mm	for CCC/CE/UL except X6-320Y041
Input	SJOW 18AWG*3 L=300±20mm; L=300±20mm; peel length 35mm, Tin-dip length 10mm	for UL X6-320Y041
Output	SJOW 16AWG*2 L=300±20mm; L=300±20mm; peel length 35mm, Tin-dip length 10mm	for UL X6-320Y041
Dimming	UL2733 22AWG*2C external diameter: 5.45mm L=350±20mm; L=350±20mm, peel length 35mm, Tin-dip length 10mm	M model
Dimming	UL 21996; 22AWG*3C L=350±10mm(black/white is 12v(+) ,gray is 12v(-) and DIM(-),purple is DIM(+))	A12 model

REVISION HISTORY

[illegible]