



## Product Features

- Universal input voltage / Full range: 90~305Vac;
- Constant power design, output current programming adjustable;
- (M types) off-line 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: 6KV 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, Industrial lighting, landscape lighting, etc.

## DESCRIPTION

The X6-320W series is a 320W outdoor off-line programmable LED driver that operates in constant current with high PF value and universal input voltage range of 90~305Vac. Monitored off-line 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, providing 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 that further increase the energy savings and CO<sub>2</sub> reductions achieved with LED lighting. It also helps customers to improve logistics and inventory management. The compact metal case and high efficiency enables the driver to operate with high reliability and extend product life. Overall protection is provided against lightning surge, output over voltage, short circuit, and over temperature, to ensure low failure rate.

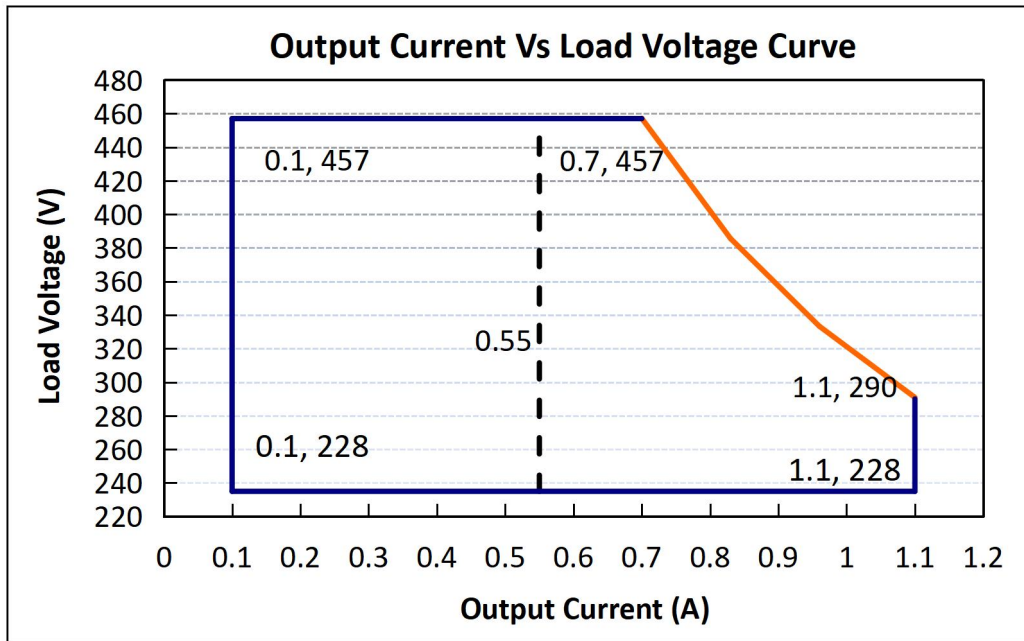
## MODELS

| 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                                   | 1.05                              | 93%                    | 0.97 |

### Notes:

- [1]. Y can be M or V. Y=M means dimmable and off-line programmable, The adjustable lout range: 10%-100% I<sub>max</sub>;  
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: 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  | 50/60Hz    | 63Hz                |                                |     |   |        |
| Leakage Current                     | -     | -          | 0.70mA              | 277Vac/60Hz                    |     |   |        |
| Input AC Current                    | -     | -          | 4.2A                | 100-277Vac & full load         |     |   |        |
| Inrush Current                      | -     | -          | 4.5A <sup>2</sup> S | 230Vac & full load             |     |   |        |
| Standby Power Consumption           |       |            | 2W                  | 230Vac/50 Hz Dim to off        |     |   |        |
| 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 | 230Vac |
|                                     | C10   | 1          | C16                 | 2                              | C25 | 3 |        |

## OUTPUT SPECIFICATIONS

| Parameter                                            | Min. | Typ. | Max. | Notes                                                                                       |
|------------------------------------------------------|------|------|------|---------------------------------------------------------------------------------------------|
| Output Current Tolerance                             | -5%  | -    | +5%  |                                                                                             |
| Output Current Setting Range (A)                     | 0.55 | -    | 1.10 | The 'M type' adjustable lout range: 10%-100% I <sub>max</sub> ,                             |
| Output Current Setting Range with Constant Power (A) | 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 (V)                           | -    | -    | 480  |                                                                                             |
| Line Regulation                                      | -1%  | -    | 1%   | 25°C±10°C ambient temperature, input voltage changes from 120Vac 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<br>I <sub>o</sub> =0.70A<br>I <sub>o</sub> =1.10A | 87.4%<br>87.7% | 89.4%<br>89.7% |         | Measured at full load and 25°C ambient temperature                           |
| Efficiency @230Vac<br>I <sub>o</sub> =0.70A<br>I <sub>o</sub> =1.10A | 90.8%<br>90.5% | 92.8%<br>92.5% |         | Measured at full load and 25°C ambient temperature                           |
| Efficiency @277Vac<br>I <sub>o</sub> =0.70A<br>I <sub>o</sub> =1.10A | 91.6%<br>91.5% | 93.6%<br>93.5% |         | 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       | -       | 230Vac&100% load, 75°C case temperature, refer to lifetime curve for details |
| Ambient Temperature                                                  | -40°C          |                | +60°C   | Reference derating curve                                                     |
| Operating Case Temperature for Safety T <sub>c_s</sub>               | -40°C          | -              | +90°C   |                                                                              |
| Operating Case Temperature for Warranty T <sub>c_s</sub>             | -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*H42 mm                                          |
| Net Weight           | 1700±100g/PCS                                            |
| Package              | L615mmxW375mmxH166mm;<br>10PCS/Ctn, Gross Weight: 19.6Kg |

## 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                               | X6-320M457 | 10% I <sub>max</sub> | -     | 100% I <sub>max</sub> | I <sub>max</sub> =1.10A                                                            |
|                                                    | X6-320M457 | 0.11                 | -     | 1.10                  |                                                                                    |
| Recommended Dimming Range for 0-10V                |            | 0V                   | -     | 10V                   | Default 1-10V/ PWM<br>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                                                                                                                                                                                                        | √        |
|                 |                     | EN62384                                                                                                                                                                                                        | √        |
| ENEC            | CB Countries        | IEC61347-1, IEC61347-2-13                                                                                                                                                                                      | √        |
| CB              | India               | IS 15885(PART 2/SEC 13)                                                                                                                                                                                        | √        |
| BIS             | USA                 | UL 8750                                                                                                                                                                                                        | √        |
| UL              | Canada              | CSA C22.2 No.250.13                                                                                                                                                                                            | √        |
| CUL             | South Korea         | K61347-1, K61347-2-13                                                                                                                                                                                          |          |
| KC              | Japan               | J61347-1, J61347-2-13                                                                                                                                                                                          |          |
| PSE             | Australia           | AS/NZS IEC 61347.2.13                                                                                                                                                                                          | √        |
| SAA             |                     | AS/NZS 61347.1                                                                                                                                                                                                 | √        |
| EAC             | Russia              | ГОСТ Р МЭК 61347-1-2011<br>ГОСТ IEC 61347-2-13-2013<br>ГОСТ IEC 62493-2014<br>СТБ EH 55015-2006<br>ГОСТ IEC 61547-2013<br>ГОСТ 30804.3.2-2013 (IEC 61000-3-2:2009)<br>ГОСТ 30804.3.3-2013 (IEC 61000-3-3:2008) | √        |

### Insulation Conditions

|             |             |         |            |       |
|-------------|-------------|---------|------------|-------|
| Insulation  | Input/Mains | Dimming | LED Output | Case  |
| Input/Mains | /           | Double  | Double     | Basic |
| Dimming     | Double      | /       | Basic      | Basic |
| LED Output  | Double      | Basic   | /          | Basic |
| Case        | Basic       | Basic   | Basic      | /     |

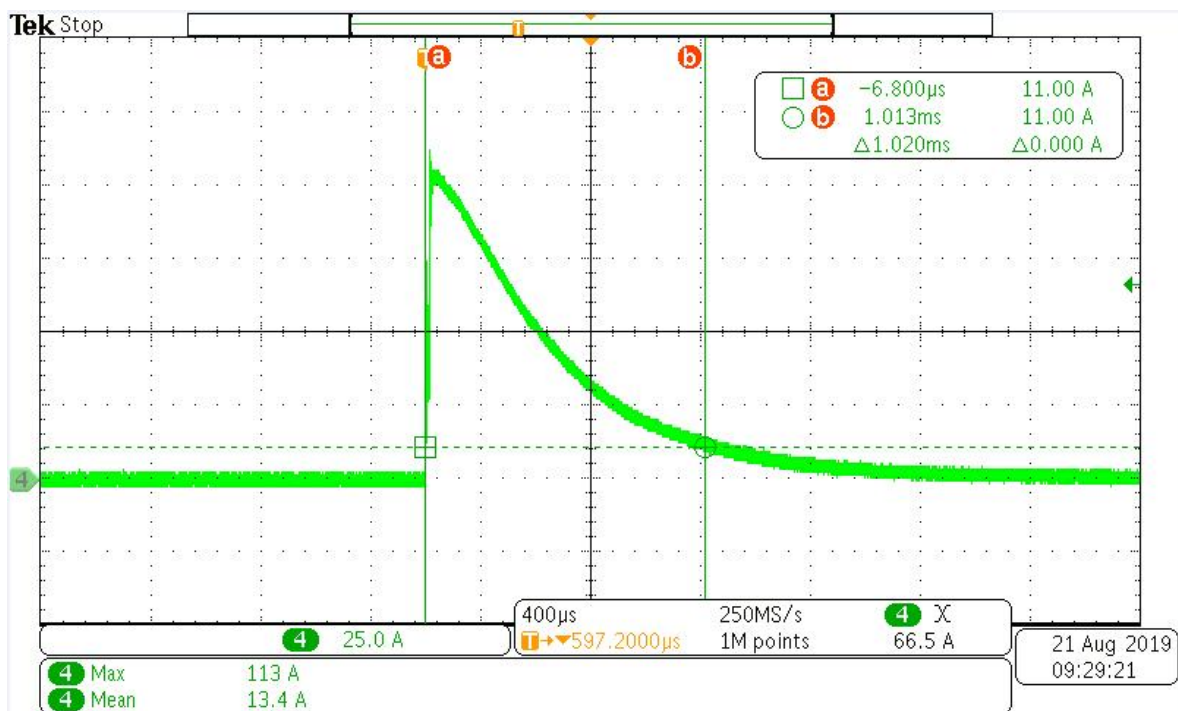
### EMC COMPLIANCE

| 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                | √        |

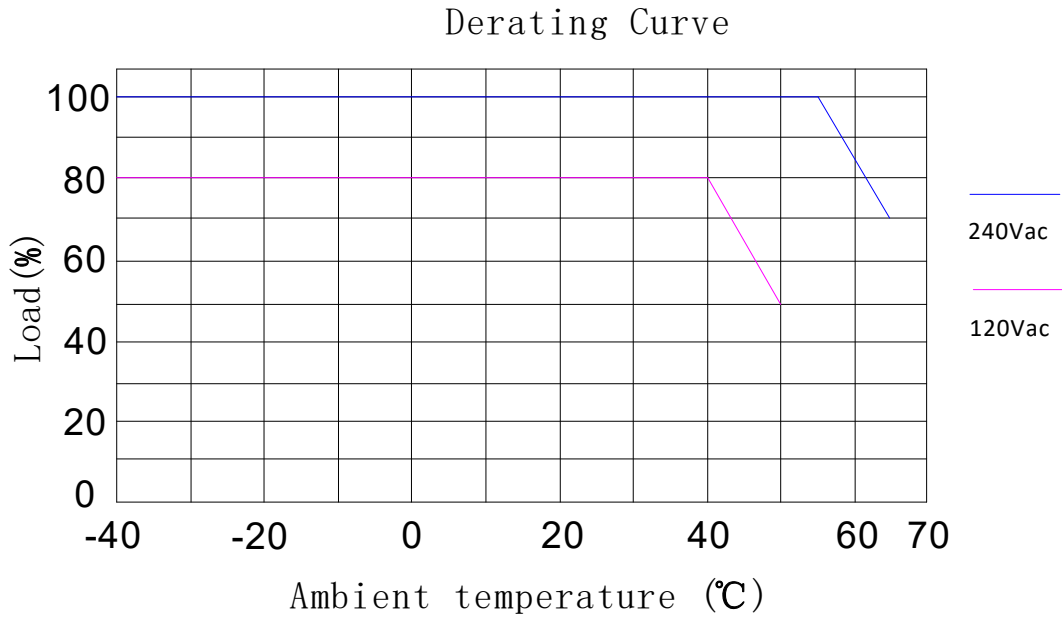
### NOTE:

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

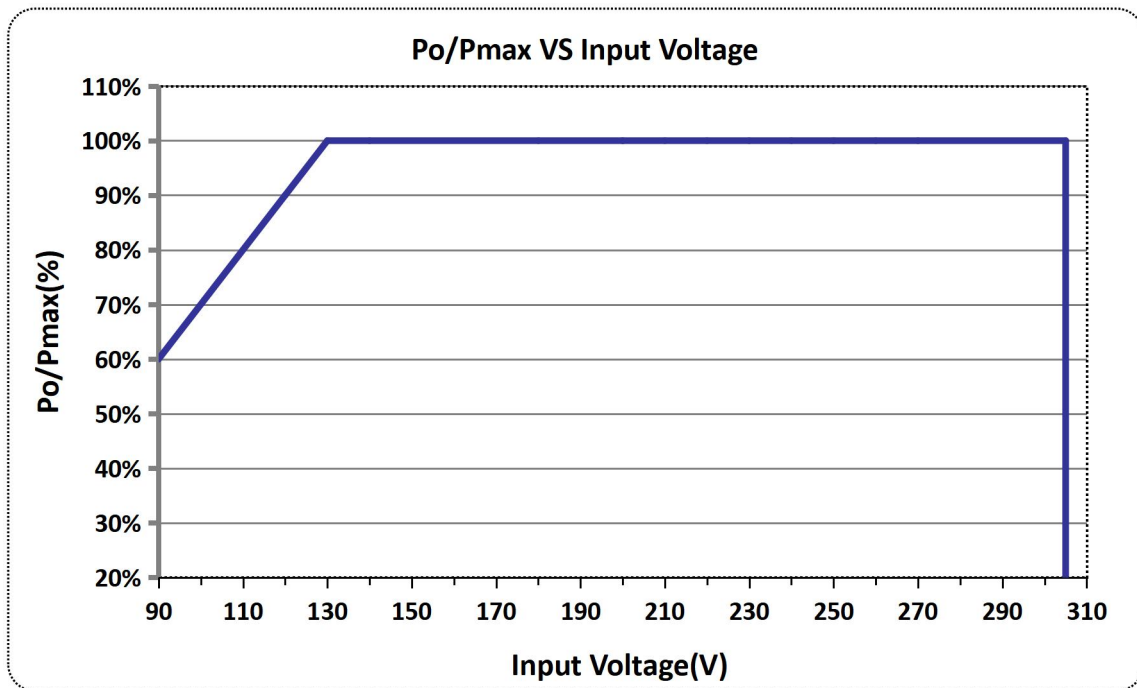
### INRUSH CURRENT WAVEFORM



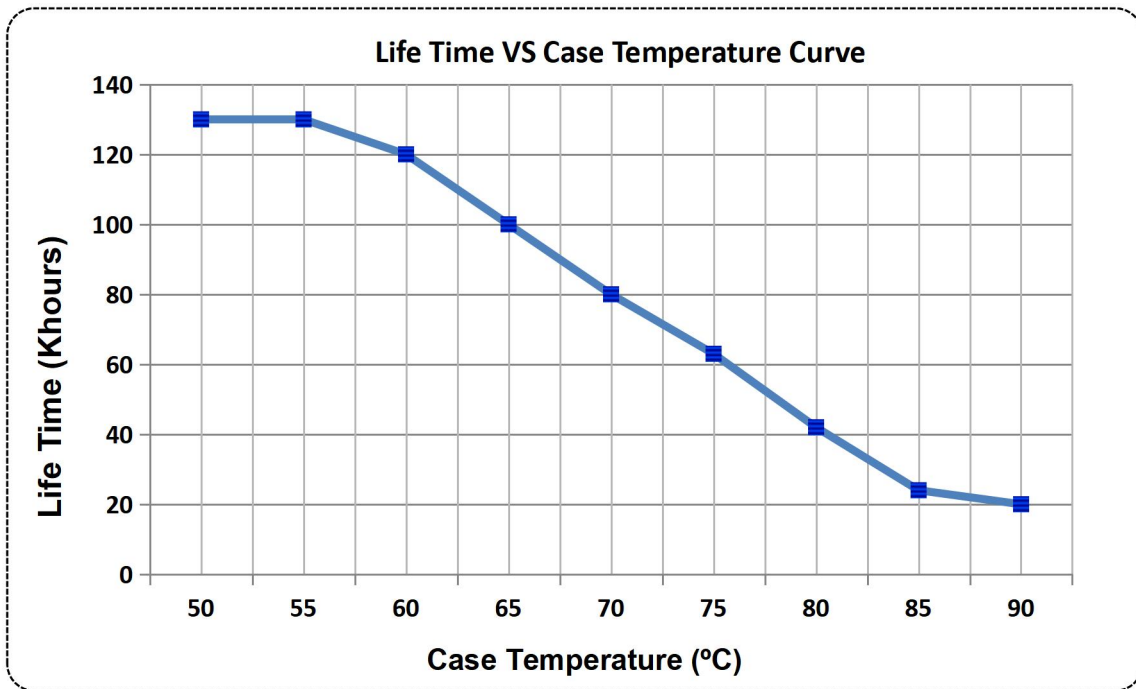
### DERATING CURVE



### OUTPUT POWER VS INPUT VOLTAGE

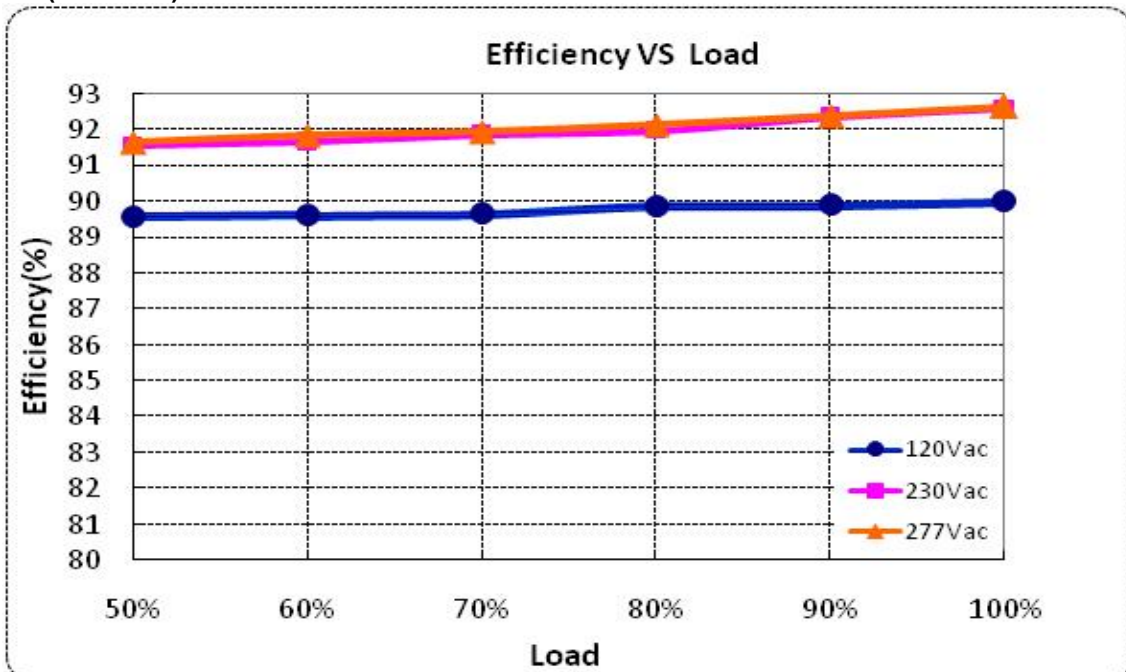


### LIFETIME VS CASE TEMPERATURE

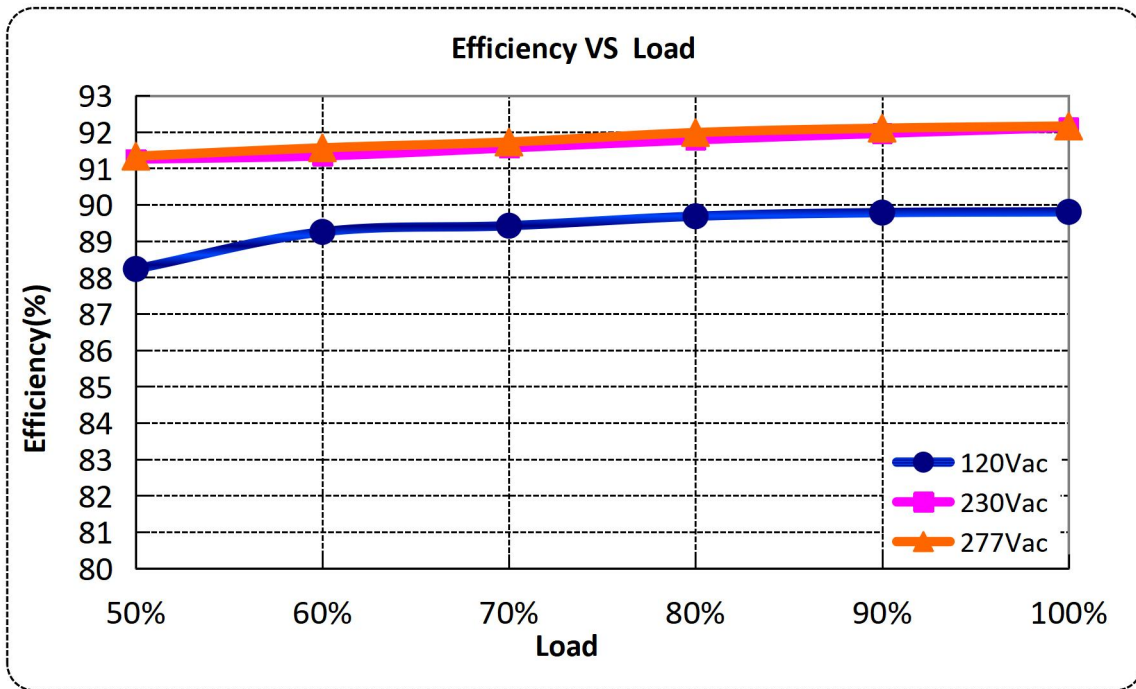


### EFFICIENCY VS LOAD

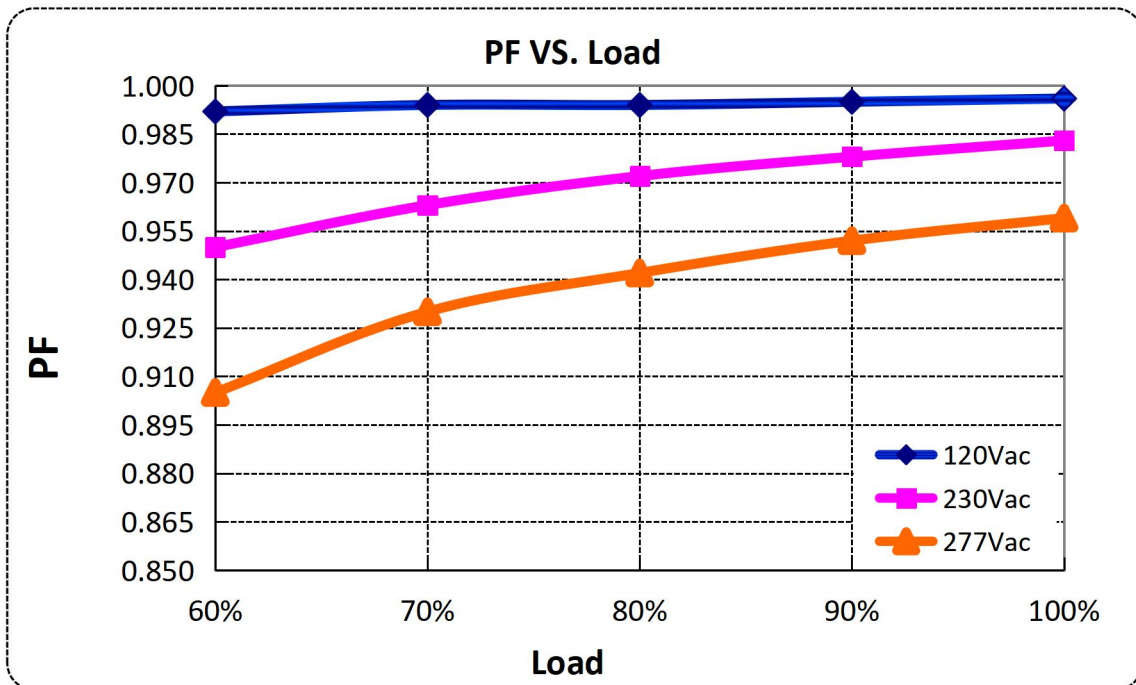
X6-320Y457(I<sub>o</sub>=0.70A)



X6-320Y457 (I<sub>o</sub>=1.10A)

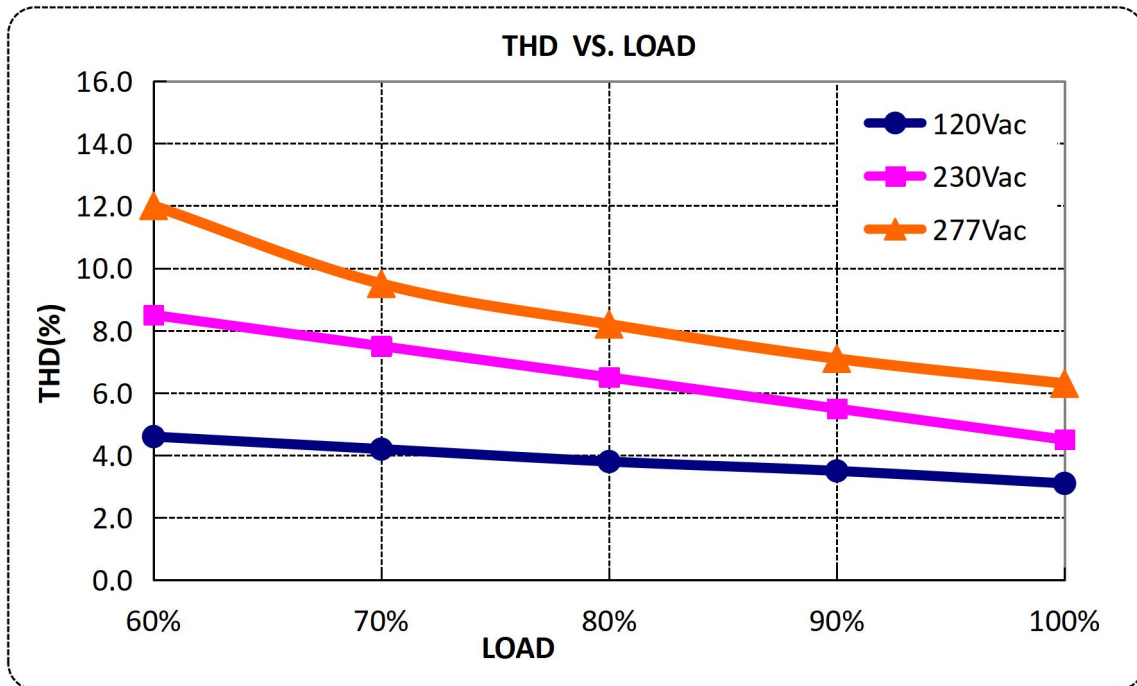


### POWER FACTOR VS LOAD





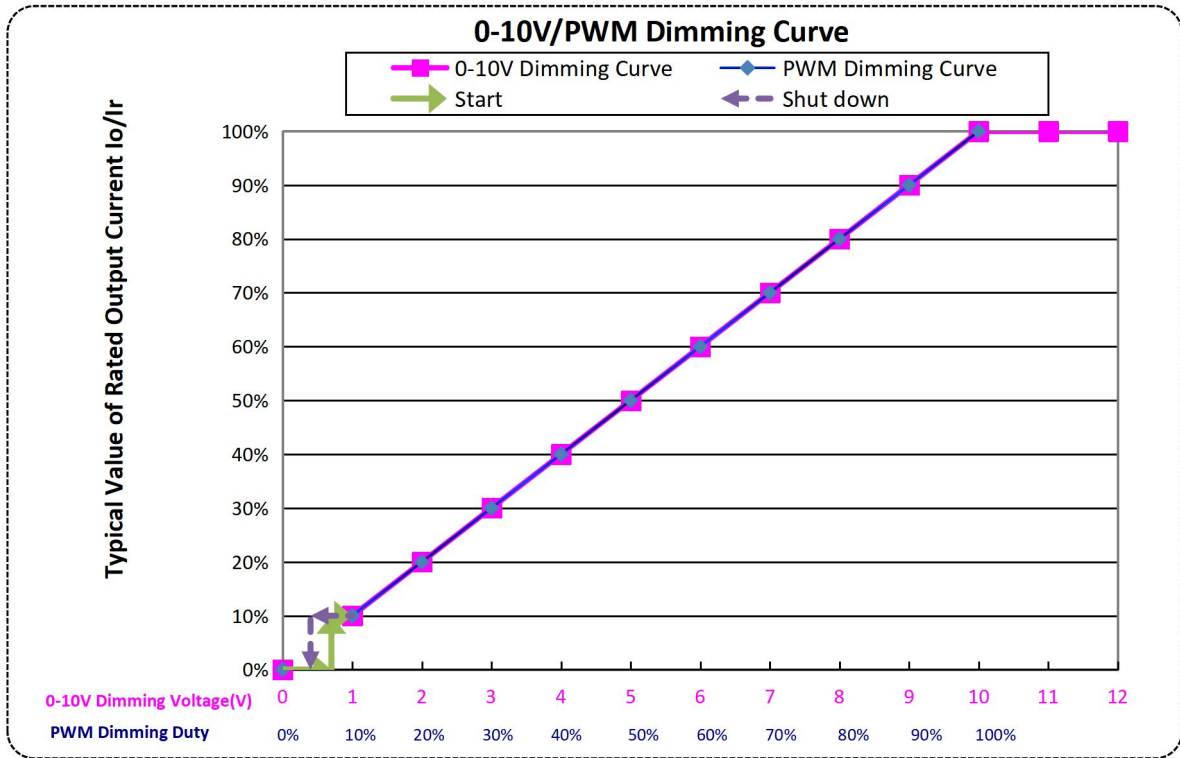
### TOTAL HARMONIC DISTORTION



### PROTECTIONS

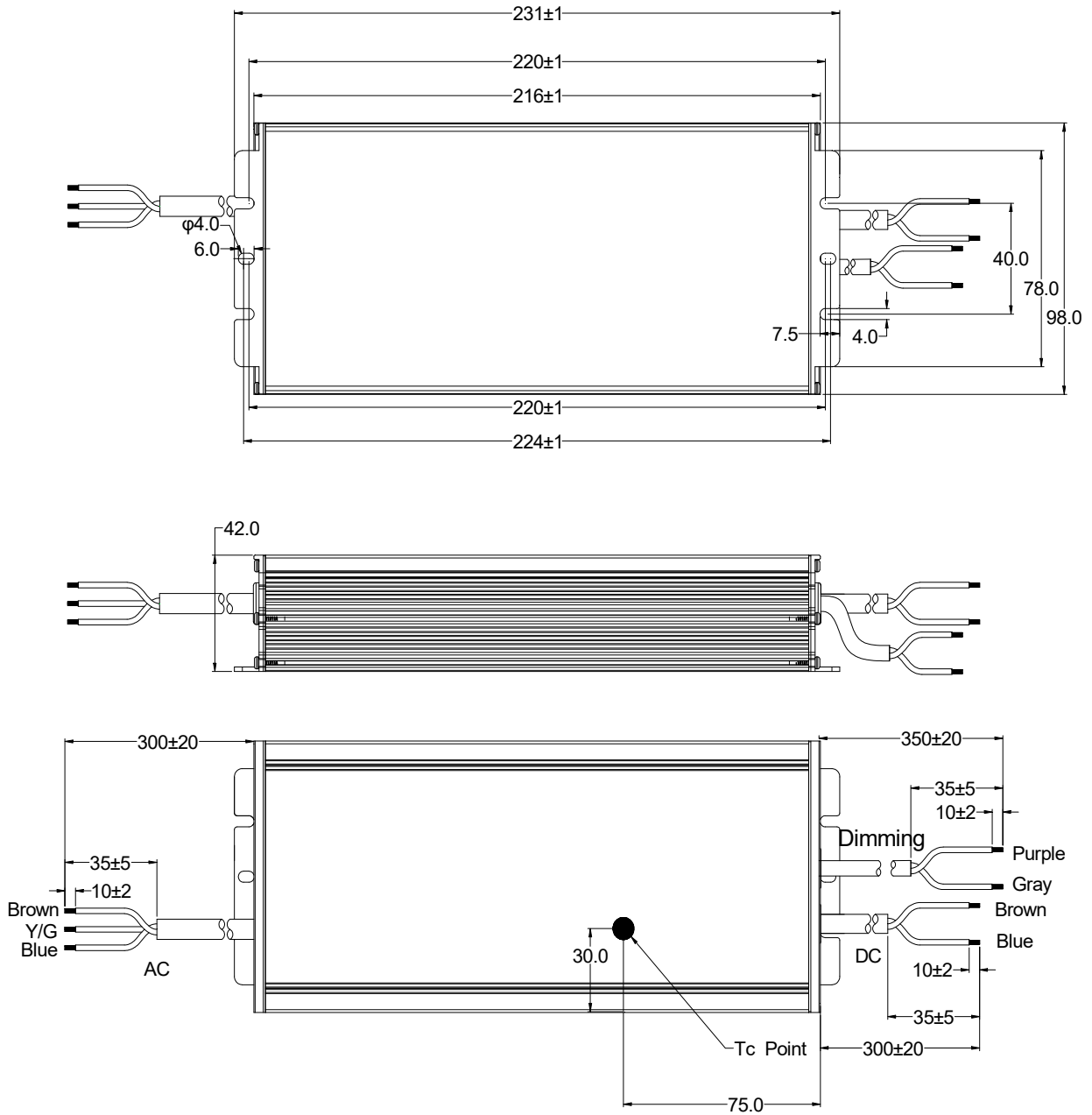
| Parameter                   | Notes                                                                                                                                                                                               |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Over Temperature Protection | Decreases output current, returning to normal after over temperature is removed. The max derating could be met Max Temperature 85°C and Max Humidity 85%.                                           |
| 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 mode when output voltage exceeds limit, and return to normal when the fault is eliminated and restart the power supply.                                                         |

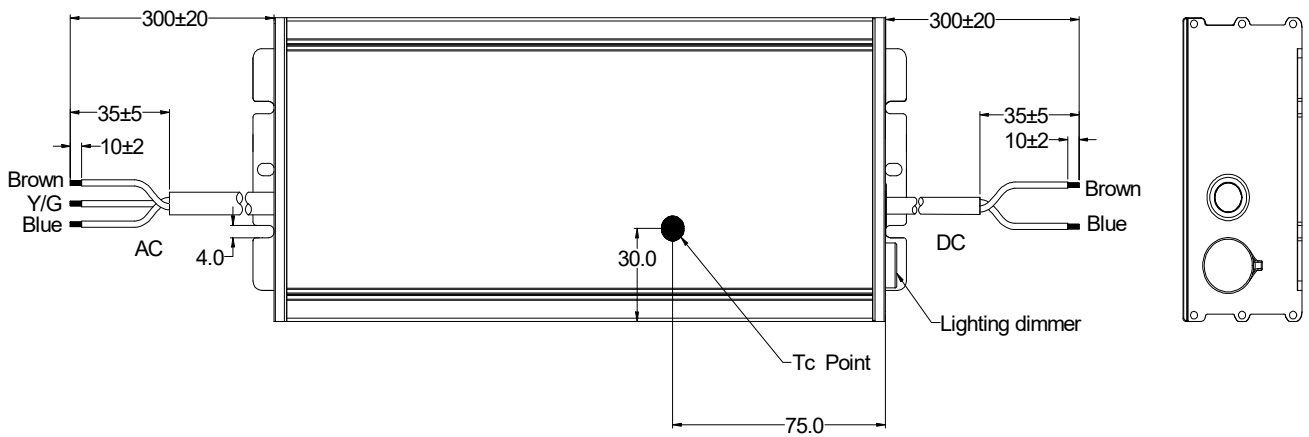
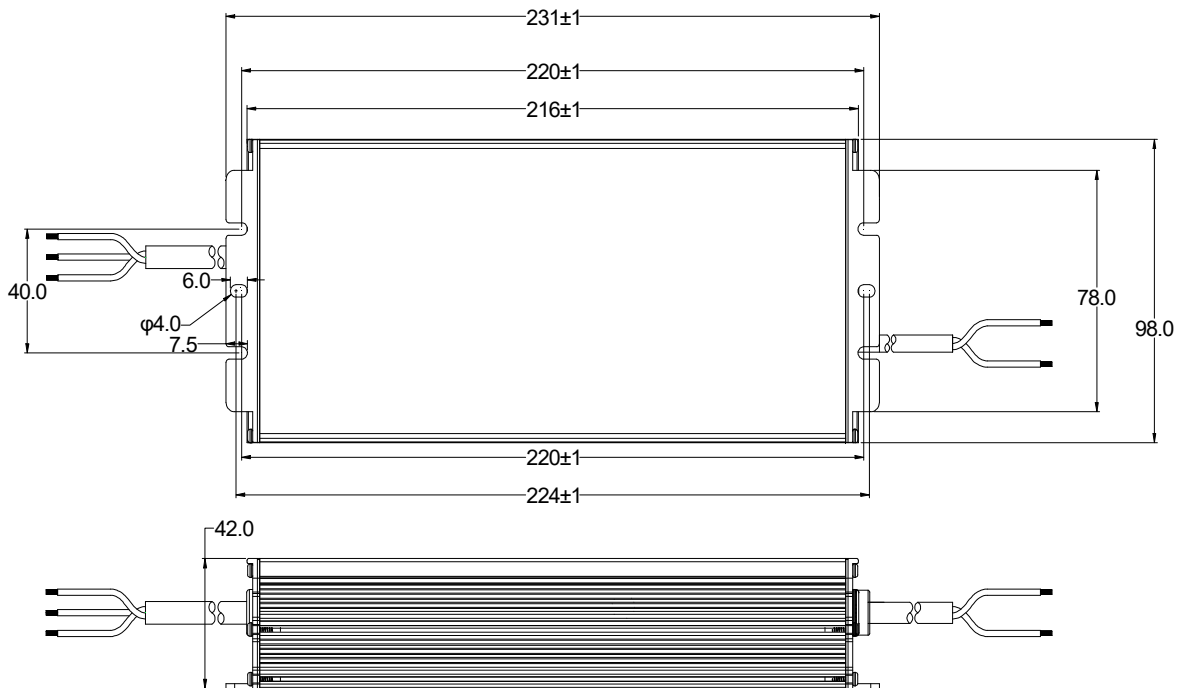
### 0-10V/PWM DIMMING



### MECHANICAL OUTLINE

#### X6-320M457





| Wire    | Specification                                        | Note      |
|---------|------------------------------------------------------|-----------|
| Input   | SJOW 17AWG*3C external diameter: 8.2mm L=300±20mm    | CCC/CE/UL |
| Output  | SJOW 17AWG*2C external diameter: 7.7mm L=300±20mm    | CCC/CE/UL |
| Dimming | UL2733 22AWG*2C external diameter: 5.45mm L=350±20mm | Y=M       |

### LABEL

#### X6-320M457

73.00 mm
203.00 mm

**INPUT**

L (BROWN 棕)

G (Y/G 黄/绿)



N (BLUE 蓝)

**MOSO<sup>®</sup> X6-320M457**  
LED DRIVER  
LED 控制装置(恒流型)

|                       |                                                                                                  |
|-----------------------|--------------------------------------------------------------------------------------------------|
| INPUT (输入)            | 100-240V~ 50/60Hz, 4.2A Max.PF:0.95<br>277V~ 50/60Hz, 1.6A Max<br>(277V~ for North America only) |
| OUTPUT (输出)           | 228-457V--- 0.11-1.10A<br>Max.(最大电压): 480V---<br>Max.Power(最大功率):320W                            |
| t <sub>c</sub> : 90°C | t <sub>a</sub> : 50°C Input:100-200V~<br>t <sub>a</sub> : 60°C Input:200-240V~,277V~             |

MADE IN CHINA  
For LED module only

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

**OUTPUT**

(PURPLE 紫) DIM +

(GRAY 灰) DIM -

(BROWN 棕) Vo +

(BLUE 蓝) Vo -




#### X6-320V457

73.00 mm
203.00 mm

**INPUT**

L (BROWN 棕)

G (Y/G 黄/绿)



N (BLUE 蓝)

**MOSO<sup>®</sup> X6-320V457**  
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Shenzhen, CHINA

**OUTPUT**

(BROWN 棕) Vo +

(BLUE 蓝) Vo -

Io ADJ (+)





## Specification for Approval

Product Name: 320W outdoor off-line programmable driver

Product Model: X6-320M457   
X6-320V457

Rev. C.2

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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