



BIS

Product Features:

- Universal input voltage / Full range: 110~305Vac;
- Constant power design, output current programming adjustable;
- (M type) offline programmable, (V type) output current adjustable by built-in potentiometer;
- 3-in-1 dimmable: 0~10Vdc, PWM, Timer dimming. Dim-to-off;
- (M type) Constant lumen output;
- Output and Dimming Signal Isolating;
- Surge protection: 5KV line-line, 10KV line-earth;
- Protections: Input OVP/Input UVP, 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 X6-200 series is 200W outdoor offline programmable LED driver that operates in constant current with high PF value and universal input voltage range 110~305Vac. 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 luminaire manufacturers, as one driver can be programmed for many different luminaire designs. X6-200 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 enable the driver to operate with high reliability, and extending product lifetime. Overall protection is provided against lightning surge, input over voltage, input under voltage, 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 |
|------------------|----------------------|----------------------------|---------------------------------------|---|-----------------------------------|------------------------|------|
| X6-200M286 | 200 | 143-286 | 191-286 | 0.7-1.05 | 0.7 | 92% | 0.97 |

Notes:

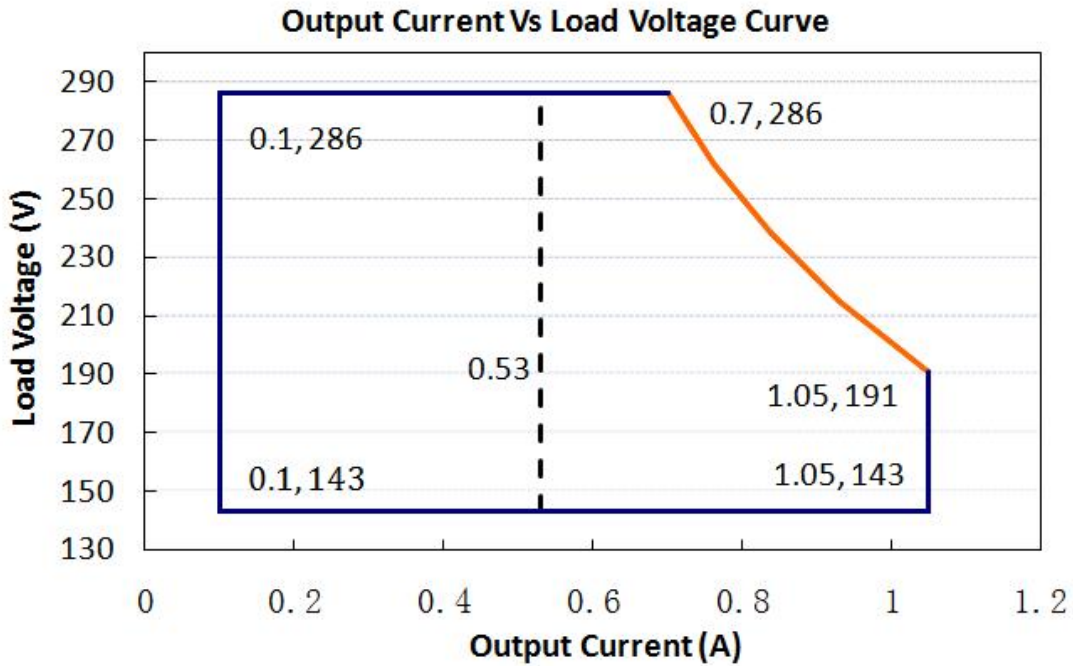
[1]. Y can be M or V. Y=M means dimmable and offline programmable, The adjustable lout range: 10%-100% I_{max};

Y=V means non-dimmable and output current adjusted by built-in potentiometer.

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

[3]. All specifications are measured at 25°C ambient temperature, input voltage 240Vac, and the typical value tested at full load, if no specific note.

OPERATING AREA I-V



Notes: 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 | 110Vac | 120-277Vac | 305Vac | Rated Input Voltage is 240Vac | | | |
| Input Frequency | 47Hz | 50/60 | 63Hz | | | | |
| Leakage Current | - | - | 0.70mA | 270Vac/60Hz | | | |
| Input AC Current | - | - | 2.8A | 120-270Vac & full load | | | |
| Inrush Current | - | - | 75A | 240Vac & full load | | | |
| Standby Power Consumption | | | 2W | 240Vac/50Hz | | | |
| Power Factor | 0.97 | 0.99 | - | 120Vac, 50-60Hz, full load | | | |
| | 0.95 | 0.97 | | 240Vac, 50-60Hz, full load | | | |
| | 0.92 | 0.95 | | 270Vac, 50-60Hz, full load | | | |
| THD | - | 5% | 10% | 120-240Vac, 50-60Hz, 70%-100% load | | | |
| | - | - | 15% | 270Vac, 50-60Hz, 70%-100% load | | | |
| Max. NO. of PSUs on CIRCUIT BREAKER | B10 | 3 | B16 | 4 | B25 | 7 | 230Vac |
| | C10 | 4 | C16 | 7 | C25 | 11 | |

OUTPUT SPECIFICATIONS

| Parameter | Min. | Typ. | Max. | Notes |
|--|--------|------|--------|---|
| Output Current Tolerance | -5% | - | 5% | |
| Output Current Setting Range | 0.105A | - | 1.05A | |
| Output Current Setting Range with Constant Power | 0.70A | - | 1.05A | |
| 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% | 120~270Vac & 100% Load, load is LED |
| No Load Output Voltage | - | - | 300Vdc | |
| 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 240Vac, load changes from 60% to 100%. |
| Turn-on Delay Time | - | 0.5s | 2s | 120Vac, 100% load |
| | - | - | 0.5s | 240Vac, 100% load |

GENERAL SPECIFICATIONS

| Parameter | Min. | Typ. | Max. | Notes |
|--|--------------|------------|---------|--|
| Efficiency @120Vac I _o =0.70A I _o =1.05A | 88% 88% | 89% 89% | | Measured at full load and 25°C ambient temperature |
| Efficiency @240Vac I _o =0.70A I _o =1.05A | 91% 91% | 92% 92% | - | Measured at full load and 25°C ambient temperature |
| Efficiency @270Vac I _o =0.70A I _o =1.05A | 91% 91% | 92% 92% | | Measured at full load and 25°C ambient temperature |
| Dielectric Strength | Input-Output | - | 3750Vac | - |
| | 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 | - | 240Vac&100% load, 85°C case temperature, refer to lifetime curve for details |
| Ambient Temperature | -40°C | | +60°C | 240Vac&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 | 5 years warranty case temperature Humidity: 10% to 95% RH |

| | | | | |
|---------------------|--|---|------|-------------------------|
| Storage Temperature | -40℃ | - | +85℃ | Humidity: 5% to 100% RH |
| Dimensions (L*W*H) | L193.6*W68*H39mm | | | |
| Net Weight | 940±100g/PCS | | | |
| Package | L502*W372*H222mm; 15PCS/Ctn, Net weight:15.7Kg | | | |

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 | X6-200M286 | 10%I _{max} | - | 100%I _{max} | I _{max} =1.05A |
| | X6-200M286 | 0.105A | - | 1.05A | |
| Recommended Dimming Range for 0-10V | | 0V | - | 10V | Default 0-10V/ PWM Dimming(0-10V,0-9V,0-5V,0-3.3V and Forward and reverse dimming 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 | |
| | | 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 | Dimming | LED Output | Case |
| Input/Mains | / | Double | Double | Basic |
| Dimming | Double | / | Basic | Basic |
| LED Output | Double | Basic | / | Basic |
| Case | Basic | Basic | Basic | / |

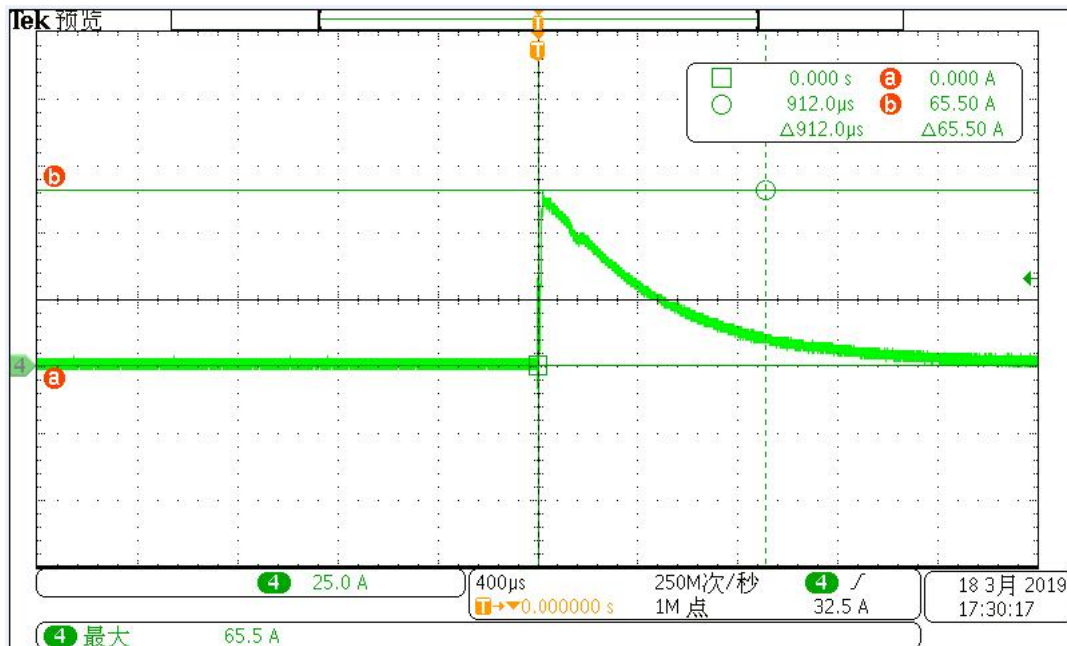
EMC COMPLIANCE

| 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 | |

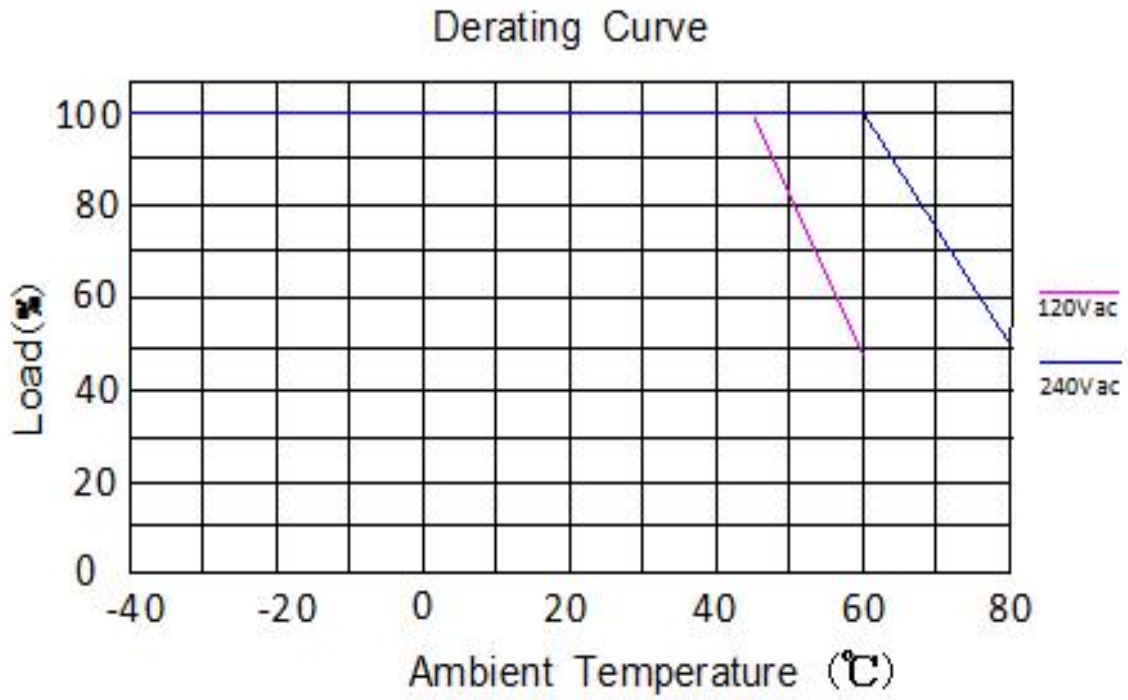
NOTE:

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

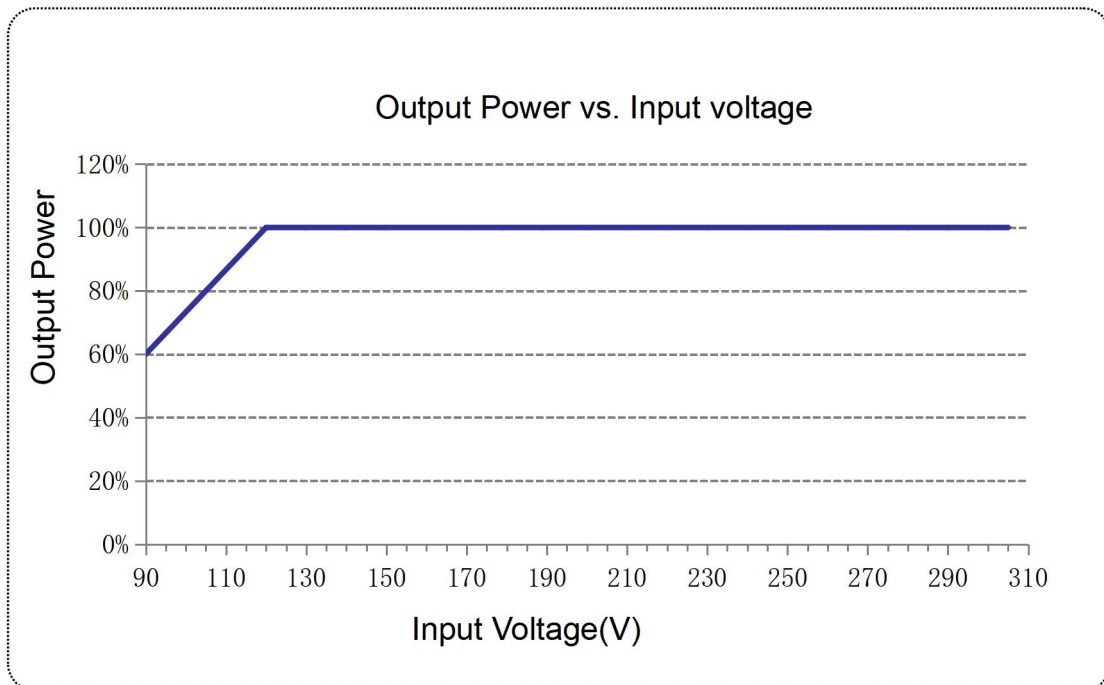
INRUSH CURRENT WAVEFORM



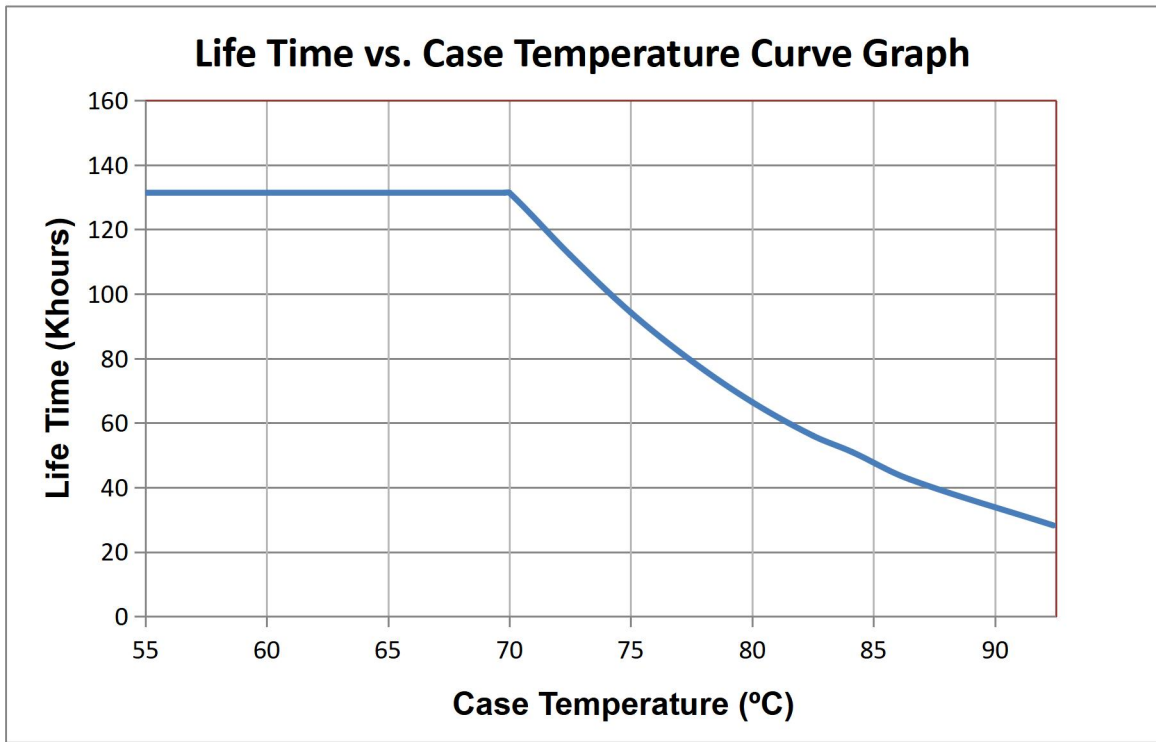
DERATING CURVE



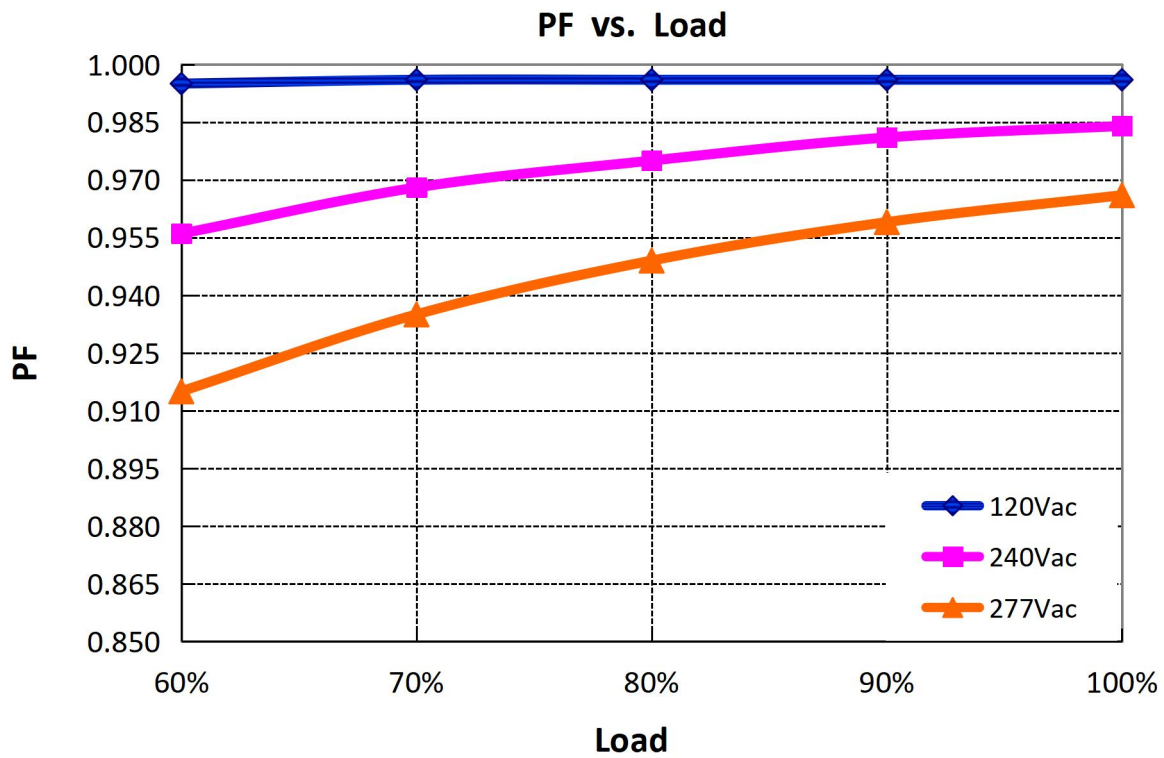
OUTPUT POWER vs. INPUT VOLTAGE



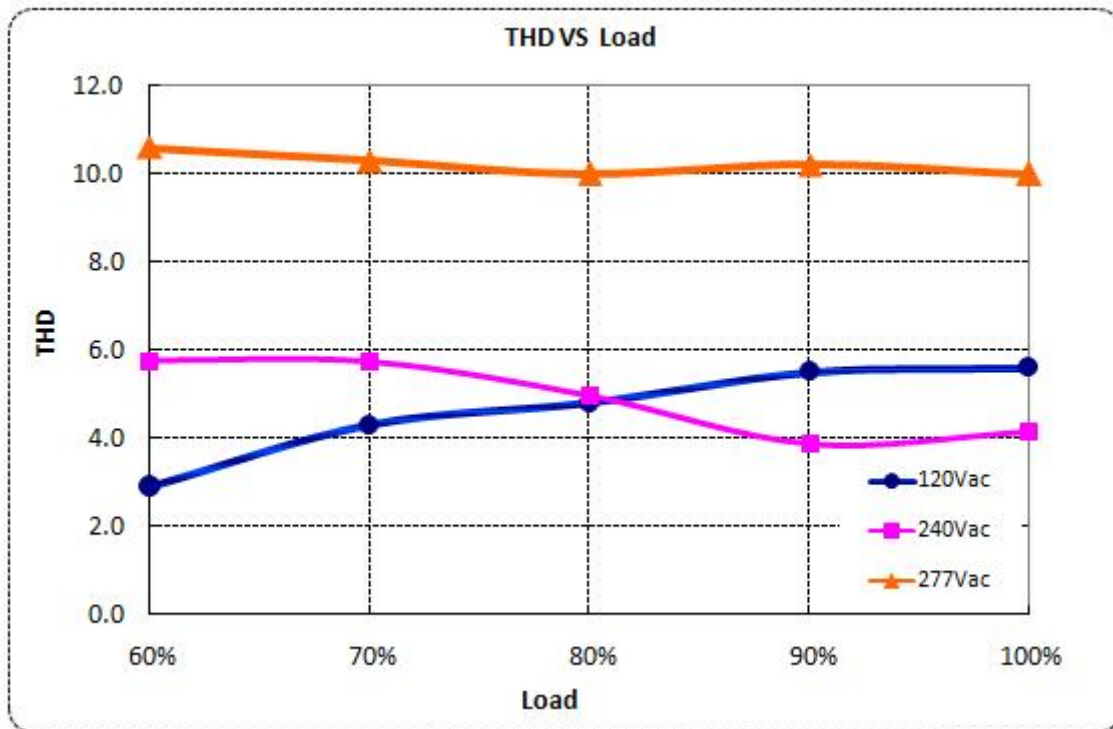
LIFE TIME vs. CASE TEMPERATURE



POWER FACTOR vs. LOAD

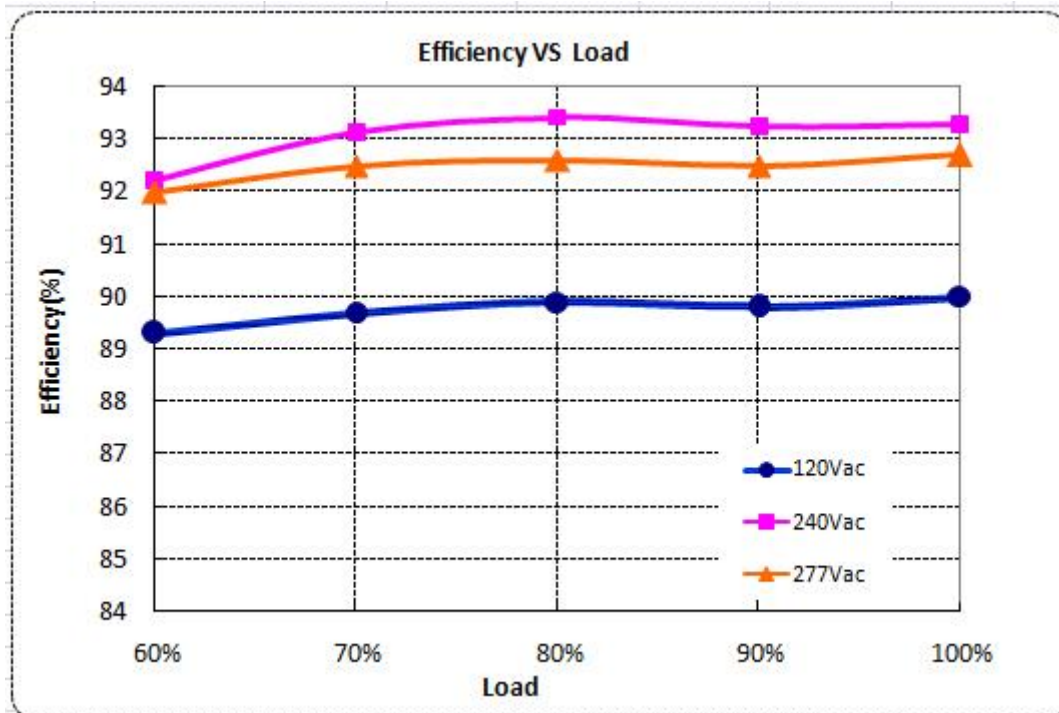


TOTAL HARMONIC DISTORTION

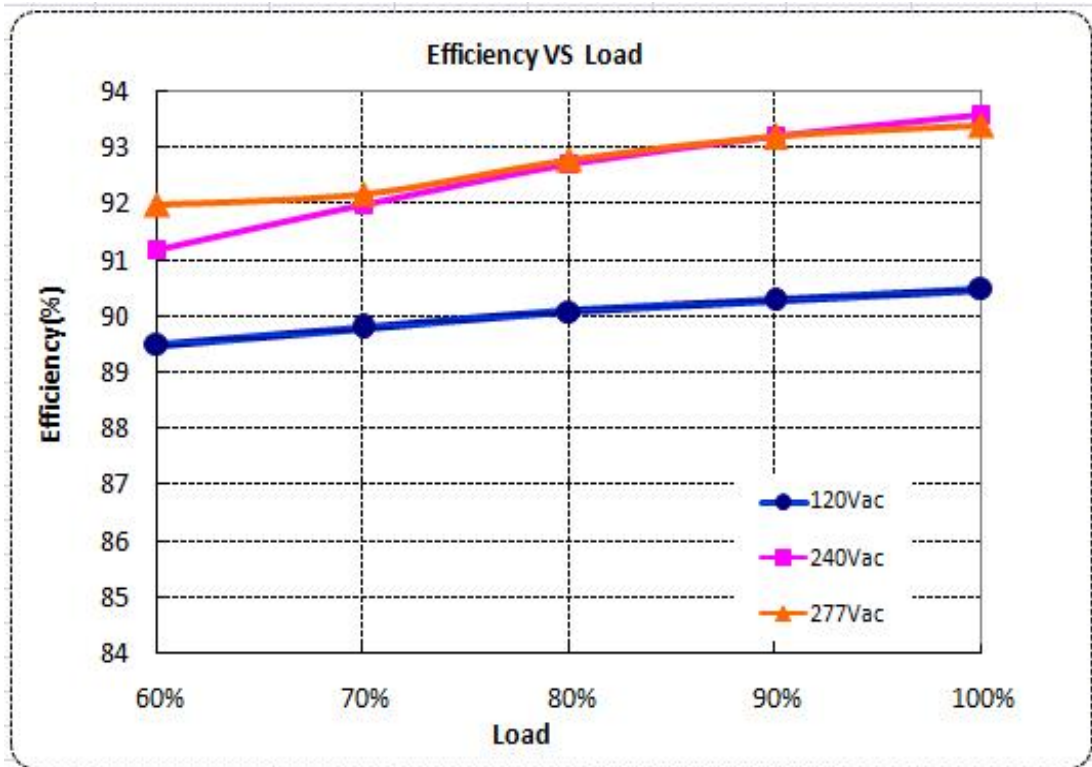


EFFICIENCY vs. LOAD

$I_o=0.7A$



Io=1.05A



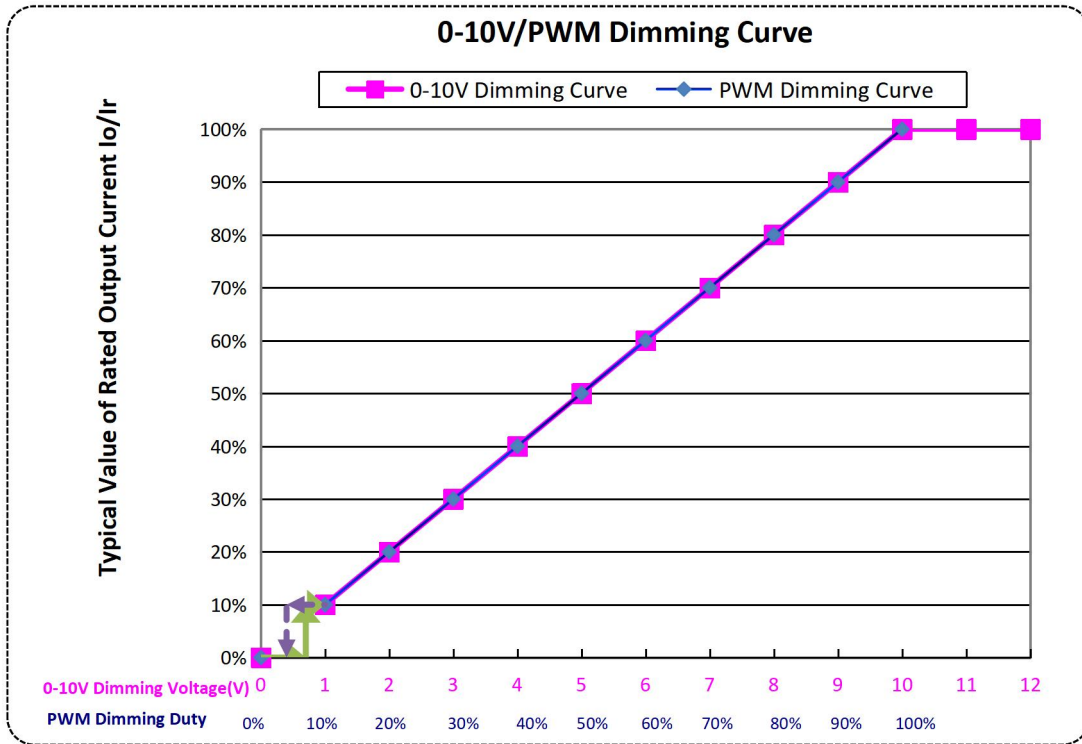
PROTECTIONS

| Parameter | | Min. | Typ. | Max. | Notes |
|--------------------------------|----------------------------|--|--------|--------|---|
| Input Over Voltage Protection | Input Protection Voltage | 325Vac | 340Vac | 350Vac | Turn off the output when the input voltage exceeds protection voltage. |
| | Recovery Voltage | 300Vac | | 315Vac | Auto Recovery. The driver will restart when the input voltage falls below recovery voltage. |
| | Max. of Input Over Voltage | - | - | 440Vac | The driver can survive for 48 hours with input over-voltage of 440Vac. |
| Over Temperature Protection | | Decreases output current, returning to normal after over temperature is removed. | | | |
| Short Circuit Protection | | Hiccup 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 | | Limits output voltage at no load and in case the normal voltage limit fails. | | | |

Notes:

[1]. All specifications are measured at 25°C ambient temperature, input voltage 240Vac, and the typical value tested at full load, if no specific note.

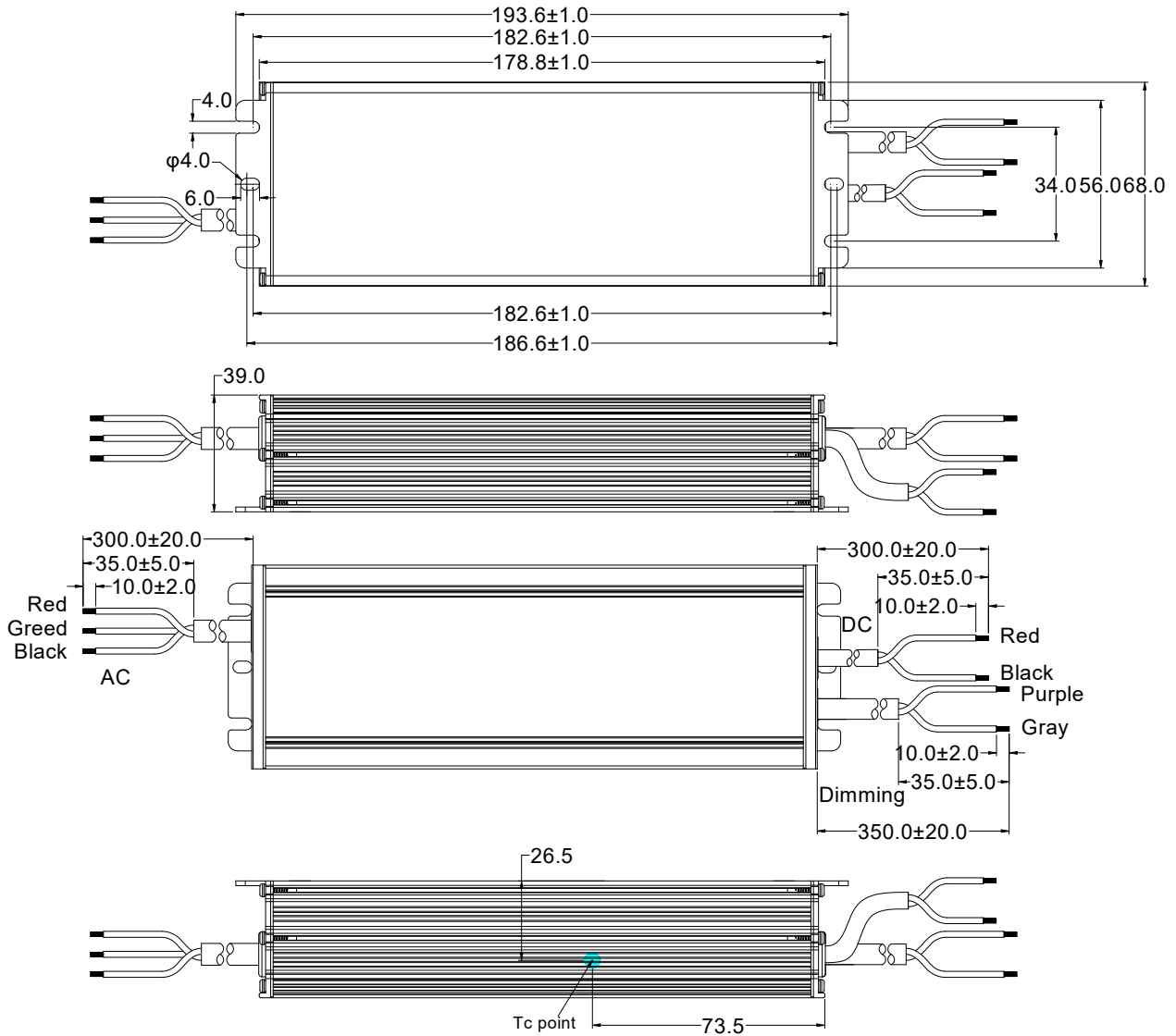
0-10V/PWM DIMMING



Note:

Dim to off model is realized by decreasing the output voltage, the power supply still has residual voltage when dim to off, so the start up voltage of the lamp should be higher than residual voltage.

MECHANICAL OUTLINE



| Wire | Specification | Note |
|---------|--|------|
| Input | BIS-9968 3x1.0mm ² external diameter:7.3mm L=300±20mm | BIS |
| Output | BIS-9968 2x1.0mm ² external diameter:6.9mm L=300±20mm | BIS |
| Dimming | UL2733 22AWG*2C external diameter: 5.45mm L=350±20mm | Y=M |

LABEL

45.50 mm

169.00 mm

INPUT

L RED

G GREEN

N BLACK


MOSO[®] X6-200M286
LED DRIVER

| | |
|-----------------------|--|
| INPUT | 100-240V~ 50/60Hz, 2.8A Max. PF:0.95 |
| OUTPUT | 143-286V = 0.10-1.05A Max: 300V = Max. Power: 200W |
| t _c : 90°C | t _a : 50°C Input: 100-200V~ t _a : 60°C Input: 200-240V~ |





MADE IN CHINA
For LED module only

SHENZHEN MOSO ELECTRONICS TECHNOLOGY CO., LTD
No. 1001, Songbai Road, Xili Town, Nanshan District,
Shenzhen, CHINA

IS15885(Part2/Sec13)



R-41077186
WWW.bis.gov.in

IP67

RoHS

OUTPUT

RED Vo +

BLACK Vo -

PURPLE DIM +

GRAY DIM -

Page 12 of 12

Specification subject to change without notice

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