



Datasheet

MPB Series - 300-450W

Outdoor Constant Voltage LED Driver Dimmable

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PRODUCT:

FEATURES:



- Efficiency up to 94%
- PF>0.97, THD<5%
- full power output within recommended operating voltage range
- Constant Voltage output
- Lightning protection level :
 - Standard: Difference module 6 kV
 - Common mode 20 kV
 - Optional: Difference module 6 kV
 - Common mode 20 kV
- IP67 rating for indoor and outdoor
- Protections: BOP、OVP、OTP、SCP、
- Warranty: 5 Years

CERTIFICATIONS:

APPLICATIONS:



LED Landscape lighting
LED Advertising Lighting
LED Exhibition Lighting
LED Stage Lighting

PRODUCT OVERVIEW:

The MPB series constant voltage driver is an isolated two-stage circuit structure, with a rated power of up to 450W, designed for outdoor constant voltage power supply. It can operate within an input voltage range of 180-305Vac, featuring a high power factor, high energy conversion efficiency, and high lightning protection level. The product's housing adopts a full aluminum structure and encapsulation process, achieving an IP67 protection rating. The compact design ensures compatibility with efficient heat dissipation. Additionally, the product is equipped with comprehensive protection features, including under-voltage protection, over-voltage protection, short-circuit protection, and over-temperature protection, enhancing reliability and extending the product's lifespan. This product is suitable for applications such as LED strip lighting, billboards, landscape illumination, exhibition lighting, and stage lighting.

| MODEULE | Rated input voltage | Rated output power | Output voltage | Adjustable range of output current | Power factor | T.H.D | Efficiency | Max. Case Temp. |
|------------------|---------------------|--------------------|----------------|------------------------------------|--------------|-------|------------|-----------------|
| HJ-H300-A24E-MPB | 200-277V | 300W | 24Vdc | 0-12.5A | 0.97 | 5% | 94% | 90℃ |
| HJ-H350-A24E-MPB | 200-277V | 350W | 24Vdc | 0-14.58A | 0.97 | 5% | 94% | 90℃ |
| HJ-H400-A24E-MPB | 200-277V | 400W | 24Vdc | 0-16.66A | 0.97 | 5% | 94% | 90℃ |
| HJ-H450-A24E-MPB | 200-277V | 450W | 24Vdc | 0-18.75A | 0.97 | 5% | 94% | 90℃ |

Remarks: Testing Conditions: 230Vac input, full load, rated output voltage/current, ambient temperature: 25℃.

INPUT:

| Parameter | Min | Typ. | Max | Note |
|--------------------------------|--------|---------|--------|---------------------------------|
| Rated input voltage | 200Vac | | 277Vac | |
| Input voltage range | 180Vac | | 305Vac | |
| Input frequency range | 47Hz | 50/60Hz | 63Hz | |
| Input current | | | | |
| HJ-H300-A24E-MPB | | | 1.8A | 200Vac, Full Load |
| HJ-H350-A24E-MPB | | | 2.0A | 200Vac, Full Load |
| HJ-H400-A24E-MPB | | | 2.3A | 200Vac, Full Load |
| HJ-H450-A24E-MPB | | | 2.6A | 200Vac, Full Load |
| Input power | | | | |
| HJ-H300-A24E-MPB | | | 360W | 200Vac, Full Load |
| HJ-H350-A24E-MPB | | | 400W | 200Vac, Full Load |
| HJ-H400-A24E-MPB | | | 460W | 200Vac, Full Load |
| HJ-H450-A24E-MPB | | | 520W | 200Vac, Full Load |
| Input surge current peak value | | | 100A | 230Vac, Cold Start |
| Power factor | 0.97 | 0.99 | | 200Vac, Full Load |
| | 0.96 | 0.98 | | 230Vac, Full Load |
| | 0.95 | 0.97 | | 277Vac, Full Load |
| | 0.9 | | | 200-277Vac 50/60Hz,70-100% Load |
| Total harmonic distortion | | 3% | 5% | 120Vac, Full Load |
| | | 3% | 5% | 230Vac, Full Load |
| | | 5% | 7% | 277Vac, Full Load |
| | | | 10% | 120-277Vac 50/60Hz,70-100% Load |

Remark:

All performance parameters are measured at an ambient temperature of 25°C and with the use of LED load, unless otherwise specified.

OUTPUT:

| Parameter | Min | Typ. | Max | Note |
|--|-----------|--------|-----------|--|
| Output voltage range | 22.8V | 24V | 25.2V | |
| Rated output voltage | | 24V | | |
| Rated output current | | 12.5A | | HJ-H300-A24E-MPB |
| | | 14.58A | | HJ-H350-A24E-MPB |
| | | 16.66A | | HJ-H400-A24E-MPB |
| | | 18.75A | | HJ-H450-A24E-MPB |
| Maximum no-load output voltage | | | 25.2V | |
| Efficiency HJ-H300-A24E-MPB HJ-H350-A24E-MPB | 92.5% | 93% | | Input 200Vac, @Full Load Output |
| | 93.5% | 94% | | Input 230Vac, @Full Load Output |
| | 94% | 94.5% | | Input 277Vac, @Full Load Output |
| Efficiency HJ-H400-A24E-MPB HJ-H450-A24E-MPB | 92.5% | 93% | | Input 200Vac, @Full Load Output |
| | 93.5% | 94% | | Input 230Vac, @Full Load Output |
| | 94% | 94.5% | | Input 277Vac, @Full Load Output |
| Current accuracy | -2% | | +2% | 50%-100% load |
| Output current ripple | | 3% | 5% | Under the conditions of a 20MHz bandwidth oscilloscope, output in parallel with a 47uF electrolytic capacitor and a 0.1uF ceramic capacitor. |
| Startup time | 500ms | | 1000ms | 100%Load@120-277Vac |
| Linear regulation rate | -2% | | +2% | 100%Load |
| Load regulation rate | -2% | | +2% | 100%Load |
| Temperature coefficient | -0.03%/°C | | +0.03%/°C | Casing Temp. : 0-90°C |
| Short circuit protection | | | 20W | Not damaged by prolonged short circuits, automatic recovery upon fault resolution. |
| Input undervoltage protection | 140Vac | 150Vac | 160Vac | Derated output, returns to normal after the abnormal condition is resolved. |
| Input overvoltage protection | 310Vac | 320Vac | 330Vac | Turn off the output, returns to normal after the abnormal condition is resolved. |
| Output overvoltage protection | 120%Vo | | 150%Vo | Burst mode, resumes normal operation after abnormal release |

OTHER:

| Parameter | Description | Note |
|---|------------------|--|
| Estimation of Mean Time Between Failures (MTBF) | 229,500 hours | 230Vac, full load, ambient temperature 25°C (MIL-HDBK-217F). |
| Lifetime | 70,000 hours | 230Vac, full load, Tc=75°C |
| International Protection | IP 67 | Suitable for dry and humid environments, avoid prolonged exposure to rain. |
| Maximum casing temperature | 90°C | |
| Warranty | 5 Years | Casing temperature (Tc point) not exceeding 75°C |
| Weight | 1000g | HJ-H300-A24E-MPB |
| | 1050g | HJ-H350-A24E-MPB |
| | 1300g | HJ-H400-A24E-MPB |
| | 1370g | HJ-H450-A24E-MPB |
| Dimension | 217mm*63mm*37mm | HJ-H300-A24E-MPB |
| | 227mm*63mm*37mm | HJ-H350-A24E-MPB |
| | 237mm*71mm*42 mm | HJ-H400-A24E-MPB |
| | 247mm*71mm*42 mm | HJ-H450-A24E-MPB |

ENVIRONMENT:

| Parameter | Min | Typ. | Max | Note |
|-----------------------|-------|------|-------|--------------------|
| Operating temperature | -40°C | 50°C | 90°C | Casing temperature |
| Operating humidity | 10%RH | | 90%RH | No condensation |
| Storage temperature | -40°C | 25°C | 90°C | |
| Storage humidity | 10%RH | | 90%RH | No condensation |

Safety and EMC:

| Items | Standard | Note |
|--------------------------------|---|--|
| CCC | GB 19510.14-2009、GB/T 17743-2021、 GB17625.1-2022 | |
| ENEC | EN 61347-1:2015 EN 61347-2-13:2014 EN 61347- 2-13:2014/A1:2017 | |
| CB | IEC 61347-1, IEC 61347-2-13-2016 | |
| CE | EN 61347-2-13:2014 EN61347- 1:2008+A1:2011+A2:2013 | |
| Conducted emission | EN 55015/GB 17743 | Conducted emission Test & Radiated emission Test |
| Radiated emission | | |
| Harmonics Current | EN 61000-3-2 | Harmonic current emissions |
| Voltage flicker | EN 61000-3-3 | Voltage Fluctuations & Flicker |
| ESD | EN 61000-4-2 | Electrostatic Discharge (ESD): 8 kV air discharge, 4 kV contact discharge |
| Radiated Susceptibility | EN 61000-4-3 | Radio-Frequency Electromagnetic Field Susceptibility Test-RS |
| Surge (transient) | EN 61000-4-5 | Surge Immunity Test: Differential Mode 4 kV, Common Mode 6 kV |
| Conducted immunity | EN 61000-4-6 | Conducted Radio Frequency Disturbances Test-CS |
| Power frequency magnetic field | EN 61000-4-8 | Power Frequency Magnetic Field Test |
| Voltage dips and interruption | EN 61000-4-11 | Voltage Dips |
| Immunity of lighting equipment | EN 61547 | Electromagnetic Immunity Requirements Applies To Lighting Equipment |
| Oscillatory wave immunity | EN 61000-4-12 | Oscillatory Waves Immunity Test |
| Insulation | I/P-O/P, I/P-FG, O/P-FG:100MΩ / 500VDC / 25°C/ 70% RH | |
| Dielectric strength | I/P-O/P:3.75kVac I/P-FG:1.5kVac O/P-FG:500Vac I/P-DIM&Vaux:3.75kVac O/P-DIM&Vaux:1.5kVac DIM&Vaux-FG:1.5kV | |
| Ground resistance | <0.1Ω, 25A/1min | |
| Leakage current | <0.75mA 277Vac | |

Note: The power supply complies with relevant EMC standards. As part of the terminal equipment system, EMC needs to be reconfirmed in conjunction with the entire system.

Characteristics Curve:

| Vin | Peak current | Duration (@10% peak current) | Duration (@50% peak current) |
|--------|--------------|------------------------------------|------------------------------------|
| 230Vac | 81.6A | 964us | 420us |
| 277Vac | 97.6A | 980us | 420us |

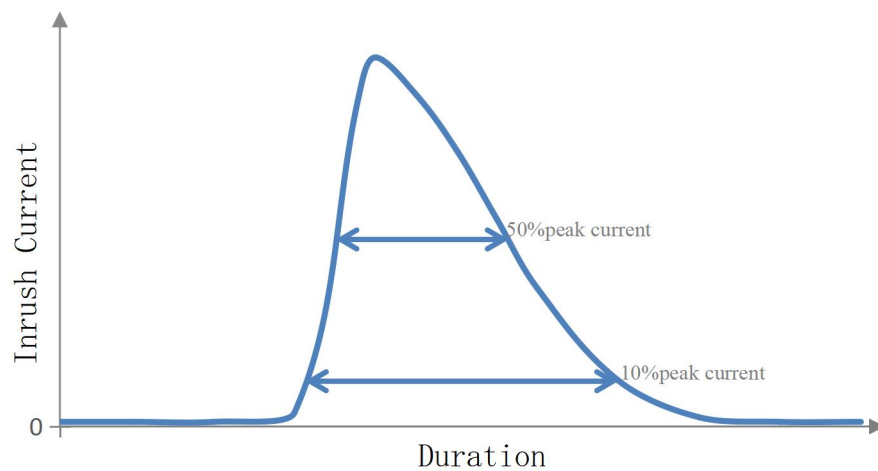


Fig 1. Inrush Current VS Duration

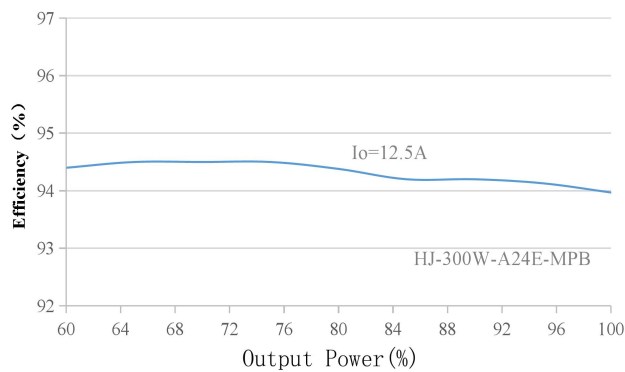


Fig 2. Efficiency VS Output Power

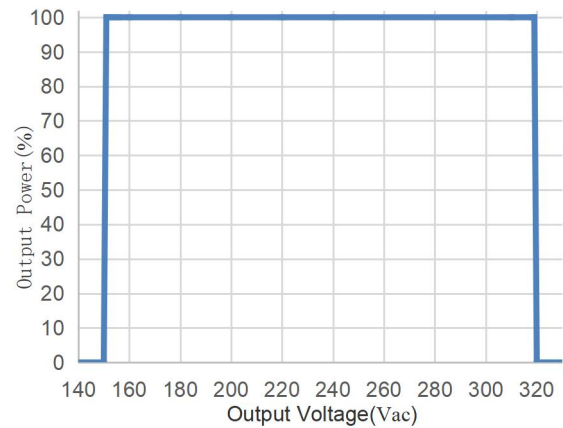


Fig 3. Output Power VS Output Voltage

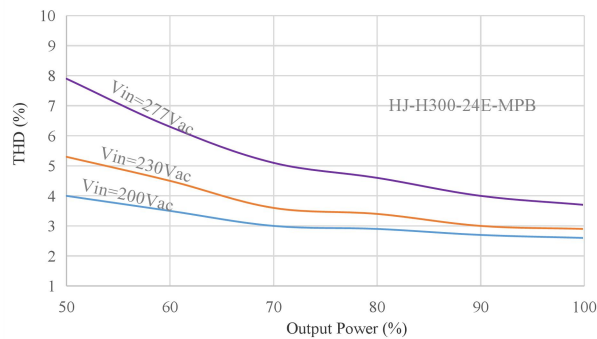


Fig 4. THD VS Output Power

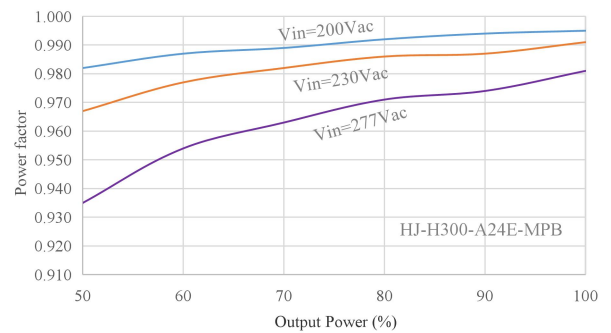


Fig 5. Power Factor VS Output Power

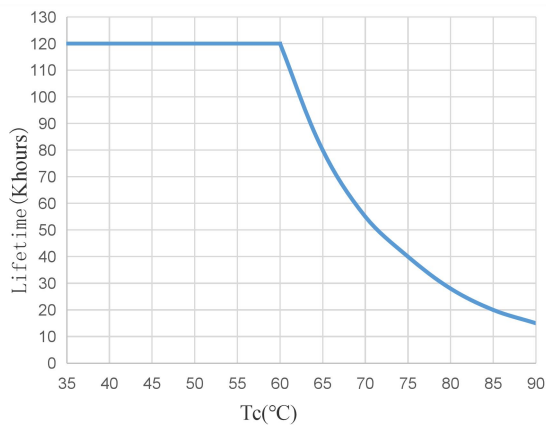


Fig 6. Lifetime VS Tc

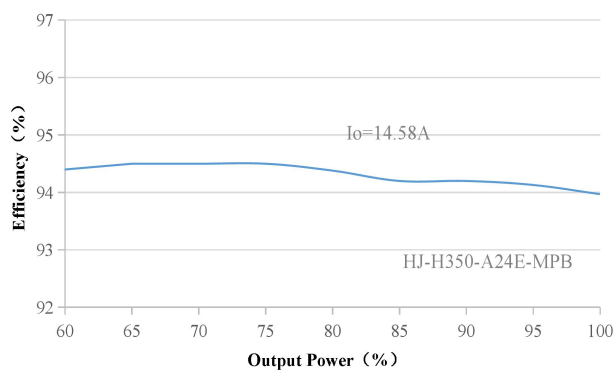


Fig 7. Efficiency VS Output Power

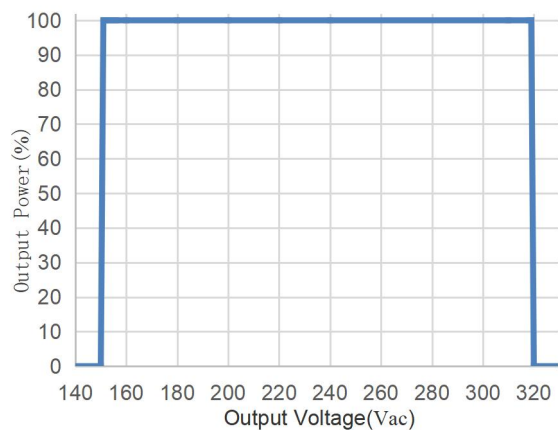


Fig 8. Output Power VS Output Voltage

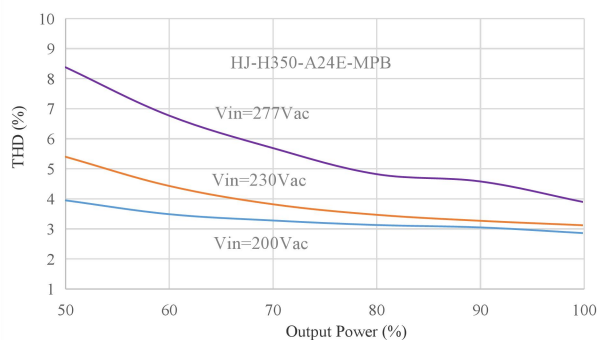


Fig 9. THD VS Output Power

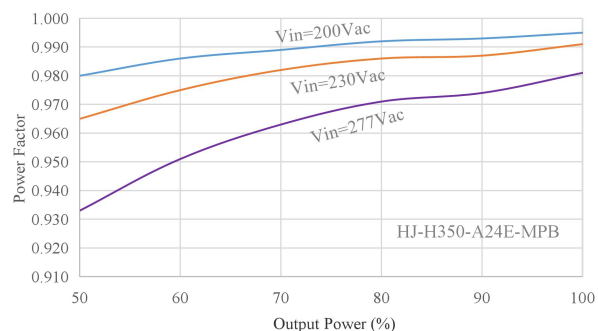


Fig 10. Power Factor VS Output Power

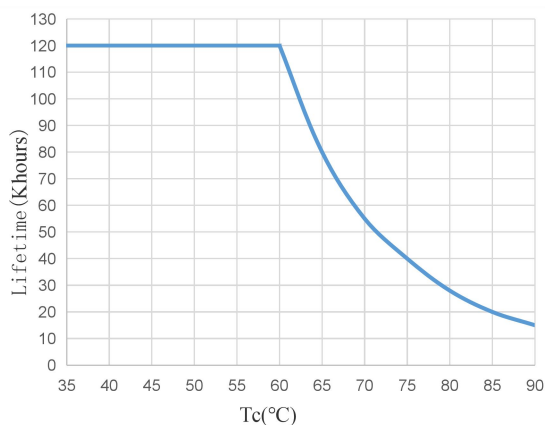


Fig 6. Lifetime VS Tc

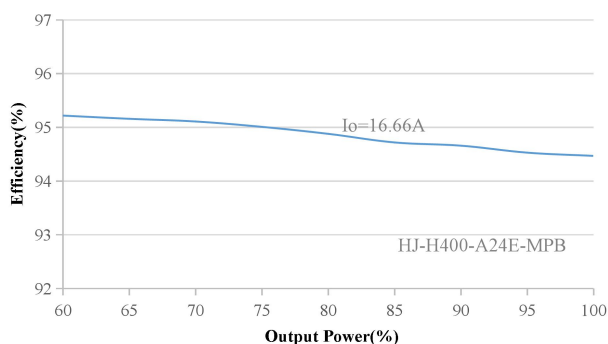


Fig 12. Efficiency VS Output Power

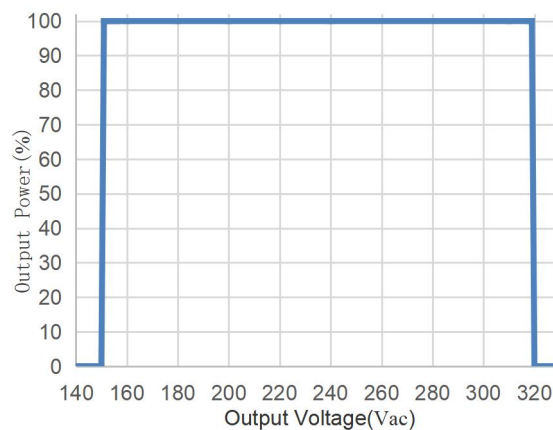


Fig 8. Output Power VS Output Voltage

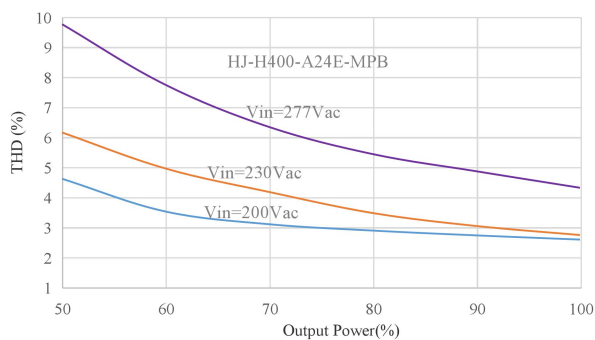


Fig 14. THD VS Output Power

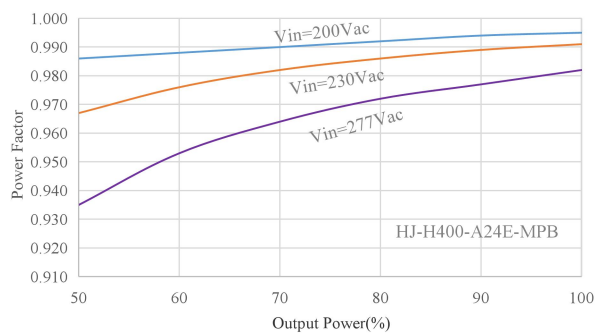


Fig 15. Power Factor VS Output Power

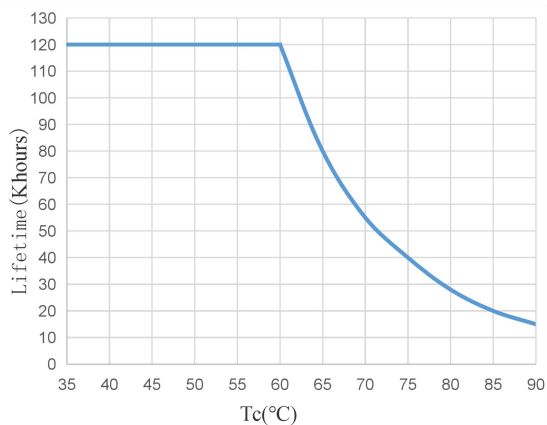


Fig 6. Lifetime VS Tc

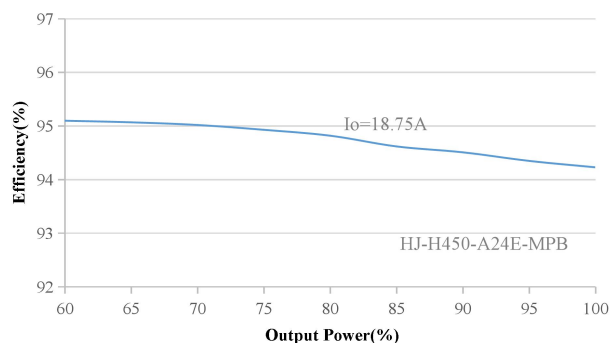


Fig 17. Efficiency VS Output Power

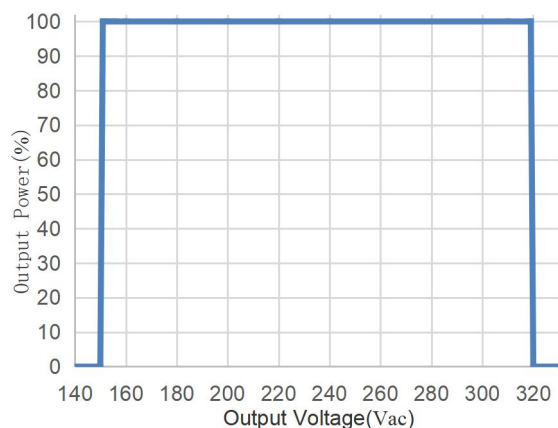


Fig 8. Output Power VS Output Voltage

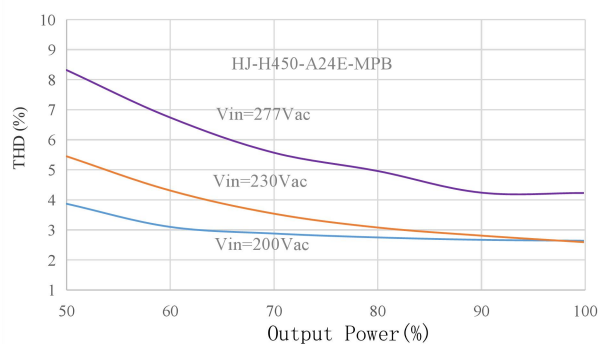


Fig19. THD VS Output Power

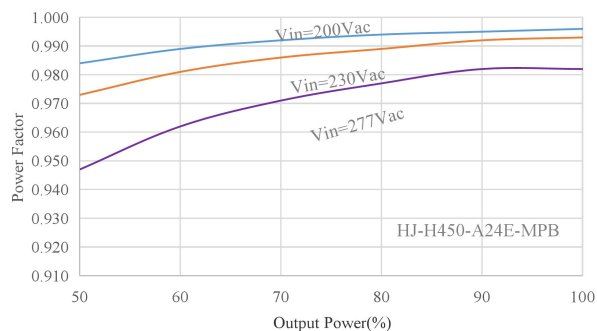


Fig20. Power Factor VS Output Power

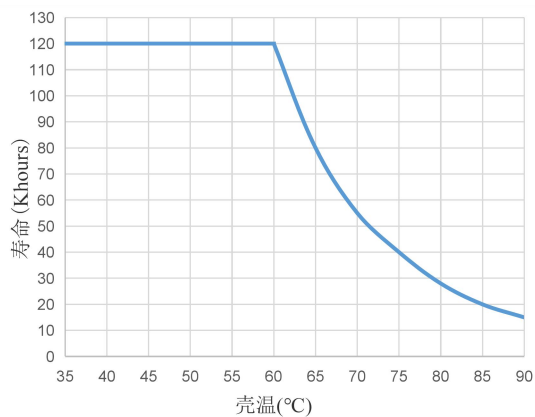
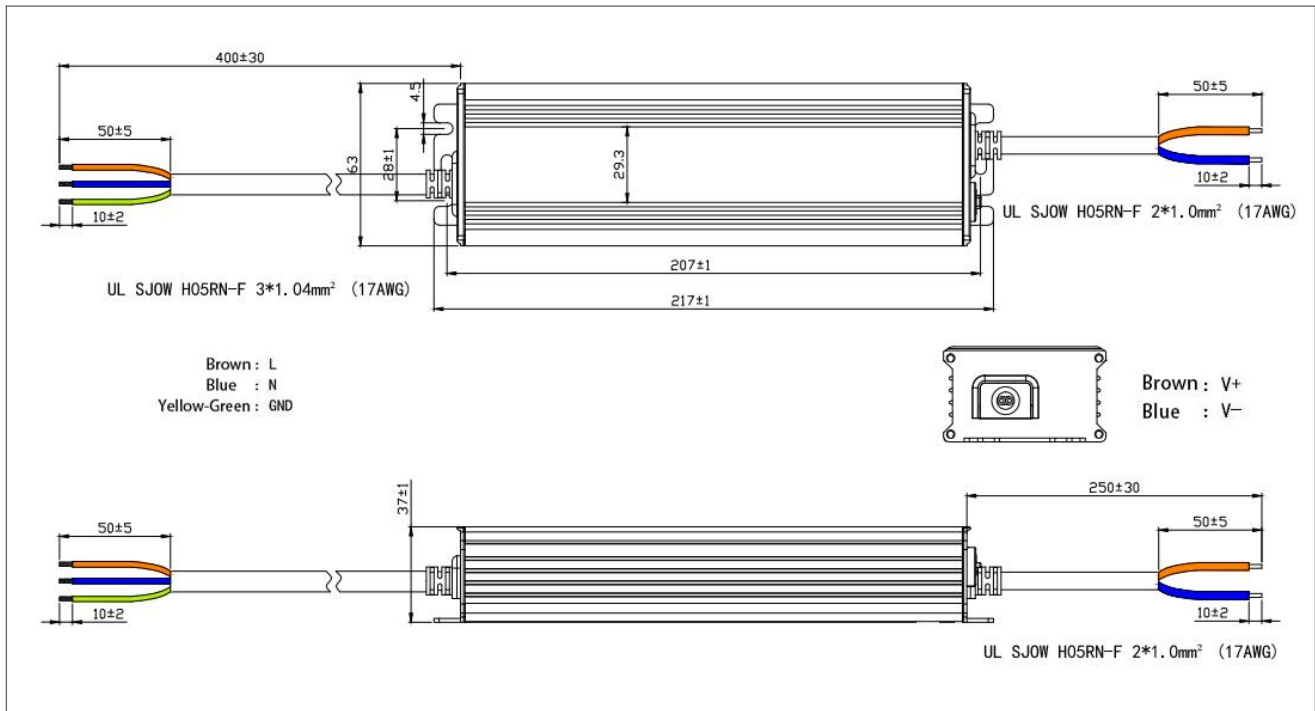


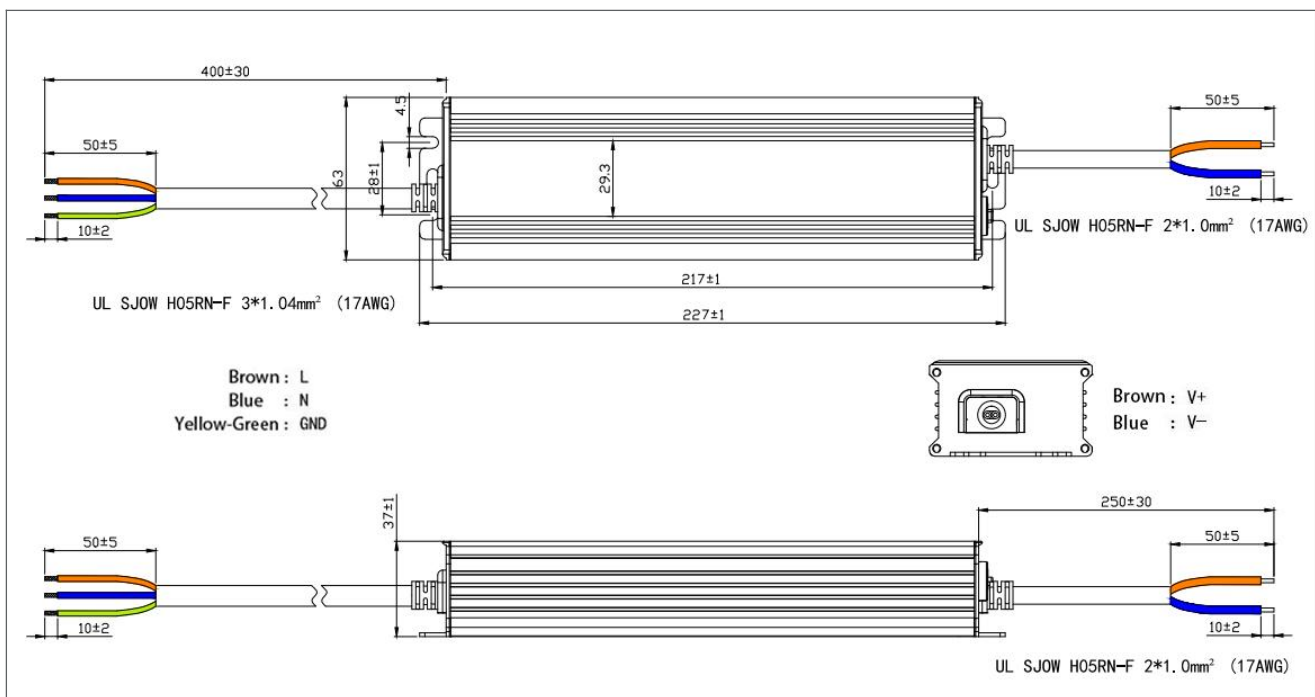
图21.寿命VS壳温

Mechanical Specification:

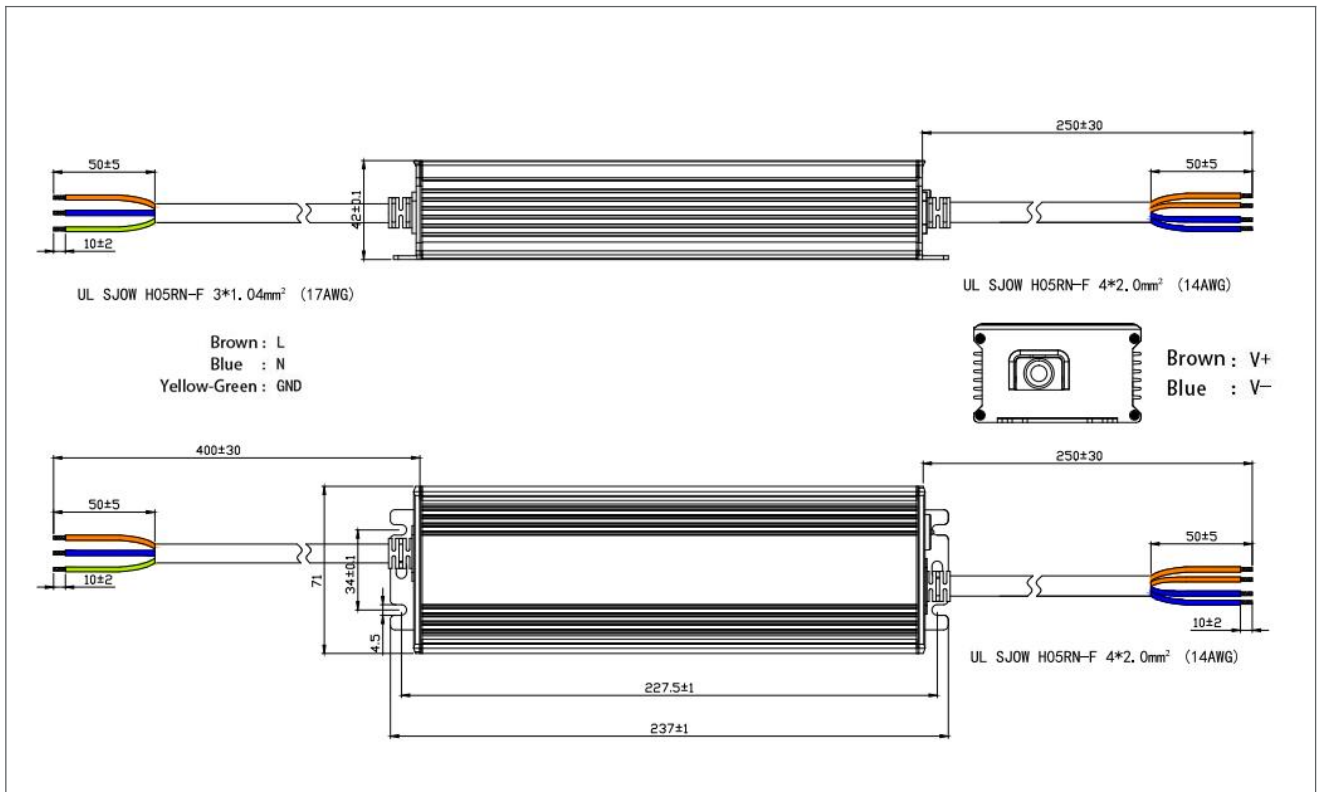
HJ-H300-A24E-MPB



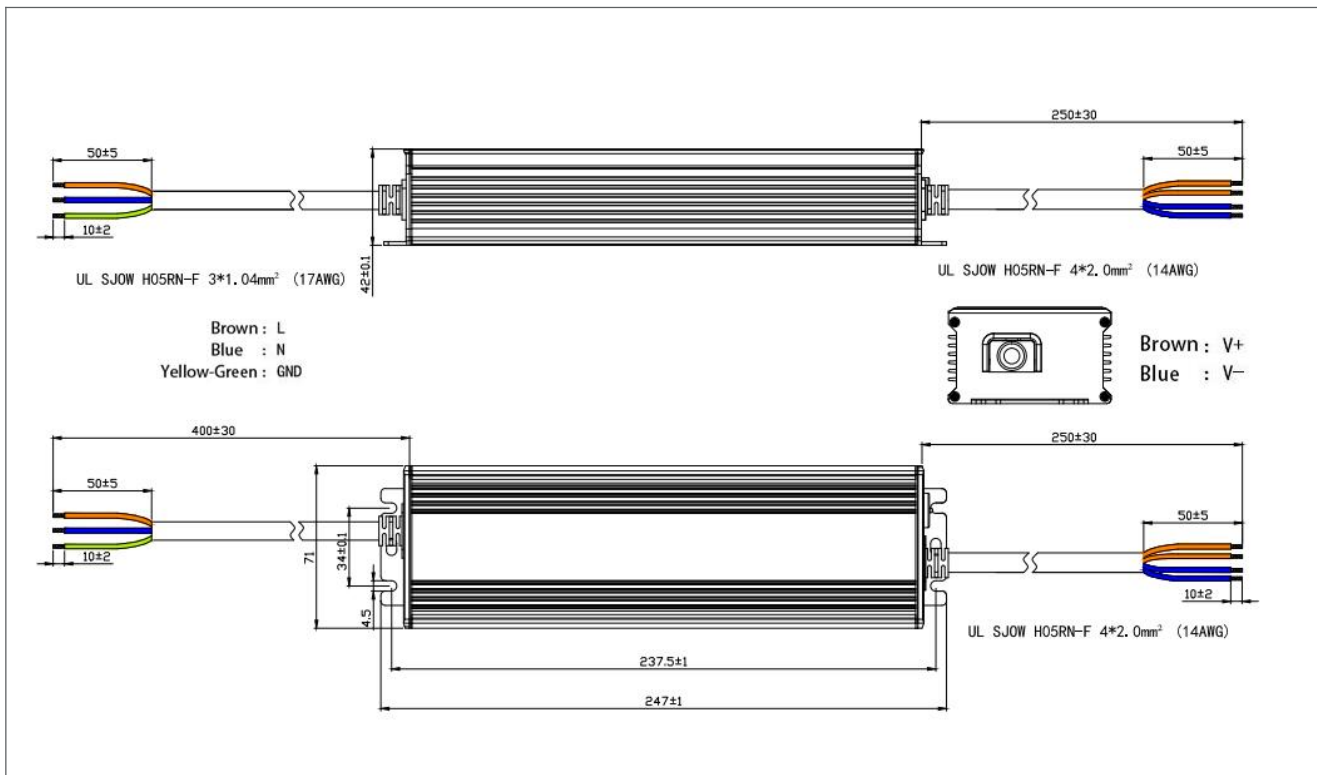
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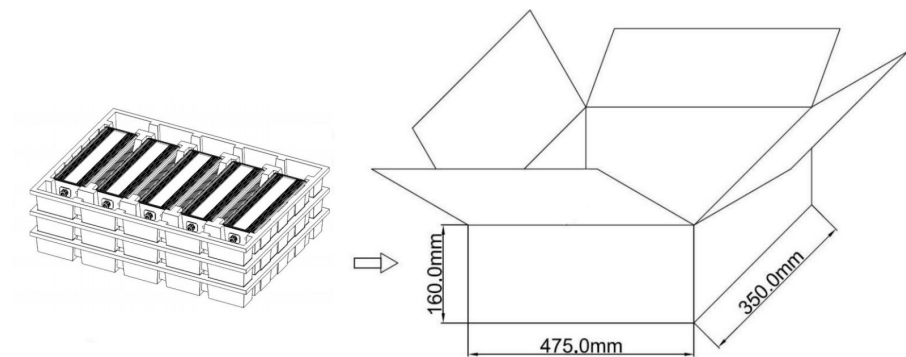
HJ-H400-A24E-MPB



HJ-H450-A24E-MPB



Packaging:



| Module | HJ-H300-A24E-MPB | HJ-H350-A24E-MPB | HJ-H400-A24E-MPB | HJ-H450-A24E-MPB |
|-----------------|------------------|------------------|------------------|------------------|
| Unit Net Weight | 1000g | 1050 | 1300g | 1370 |
| Gross Weight | 15Kg | 16kg | 19.5kg | 20.5kg |

Packaging Description:

- The external dimensions of the packaging box (unit: mm) are: Length x Width x Height = 475 x 350 x 160;
- Each box contains 15 units, arranged in 3 layers with 5 units per layer.
- The packaging box includes product name, model, manufacturer's identification, quality department's inspection certificate, manufacturing date, and other information.

Shipping:

The packaging is suitable for transportation by car, ship, and airplane. During transport, it should be protected from moisture, sunlight, and handled with care during loading and unloading.

Storage:

Product storage should comply with the provisions of GB 3873-83. Products stored for more than 1 year should undergo re-inspection, and only after passing the inspection can they be used.

RoHS:

The product complies with the European Union RoHS Directive (2011/65/EU) and the European Parliament Amendment 2015/863/EU.

Update History:

| Versions | Description of Update | Update Date | Note |
|----------|-----------------------|-------------|------|
| V00 | NEW | 2024.01.15 | |

| Edit | Audit | Approval |
|------------|--------------|-------------|
| Zhukun Jun | Lisheng Pang | Jiyuan Chen |
| | | |