

SPECIFICATION

Revision: A07

Issued Date: 2024-03-01

Model No.:MP300S

Description: Consumption Open Frame

AC/DC Power Supply

| PREPARED BY | CHECKED BY | APPROVED BY |
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Revision History

| Revision | Change Item | Date |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| A00 | Initial Release | 2020-12-09 |
| A01 | 1、1.1.5 Efficiency: Up to 93%/95% Update to 91.5%/94%; 2、1.3.1 Over current protection: Main output 105%~150%Update to 120%~160%,5 Vsb 110%~150%Update to 120%~200% | 2021-01-20 |
| A02 | 1、 Increase 15V output specifications; 2、 Update mechanical dimension drawing | 2021-03-15 |
| A03 | 3、 1、 1.4.1 PS_ON: Low (0~0.8V) = ON Up to Low (0~0.8V) or floating= ON; | 2021-05-06 |
| A04 | 1、 Update 6.2 Mechanical specification | 2022-04-14 |
| A05 | 2.2 Dielectric strength :Output to PE 500Vac 50Hz 1minute $\leq 10\text{mA}$ Update to 1500Vac 50Hz 1minute $\leq 10\text{mA}$; | 2023-02-16 |
| A06 | Update 6.3.1 Cooling convection 300 W | 2023-03-02 |
| A07 | 1、 Update 3. Safety; 2、 Update 4. EMC | 2024-03-01 |
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1. Electrical specification:

1.1 Input electrical characteristics

| No. | Electrical characteristics | MP300S |
|--------|-------------------------------------------|---------------------------------------------|
| 1.1.1 | Input voltage rang | 85Vac to 264Vac |
| 1.1.2 | Normal voltage | 100~240Vac |
| 1.1.3 | Frequency range | 47Hz--63Hz |
| 1.1.4 | Max input ac current(100Vac) | 3.5A |
| 1.1.5 | Efficiency(115/230Vac, full load) Typ | 91.5%/94% |
| 1.1.6 | Power factor(100Vac~240Vac, full load) | 0.95 |
| 1.1.7 | Inrush current(240Vac) | 50A |
| 1.1.8 | Power saving | 0.6W/230Vac(Remote off and no load on 5Vsb) |
| 1.1.9 | Hold up time | >20ms 300W load |
| 1.1.10 | Earth leakage current (NC/SFC) | 0.15mA/0.3mA |
| | Touch current(NC/SFC) | 0.1mA/0.2mA |
| 1.1.11 | Rated output power | 300W@cool convection |
| 1.1.12 | Input fuse | T5A/250Vac |

1.2 Output electrical characteristics

| No. | Electrical characteristics | MP300S | | | | | | |
|-------|----------------------------|--------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|
| 1.2.1 | Main output voltage | 12V | 15V | 19V | 24V | 28V | 36V | 48V |
| 1.2.2 | Output current | 25.0A | 20.0A | 15.8A | 12.5A | 10.8A | 8.33A | 6.25A |
| 1.2.3 | Voltage regulation | line regulation: $\pm 0.5\%$; load regulation $\pm 2\%$; voltage regulation accuracy $\pm 2\%$ | | | | | | |
| 1.2.4 | Output ripple & noise. | 12V-15V: 200mV, 19V - 28V: 280mV, 32V - 48V: 480mV | | | | | | |
| 1.2.5 | Output transient response. | $\pm 5\%$ of output voltage; step load: 5%-50% or 50-100%, slew rate 1A/us | | | | | | |

| | | |
|-------|--------------------------------------------|------------------------------------------------|
| 1.2.6 | Startup time | $\leq 2.0s @ 100V_{ac}$ input, $25^{\circ}C$; |
| 1.2.7 | Output overshoot during turn-on & turn-off | 5% |
| 1.2.8 | Output voltage rise time | $5 < Tr \leq 100ms$ |

| No. | Electrical characteristics | MP300S |
|--------|----------------------------|--------------------------------------------------------------------------------------------------------|
| 1.2.9 | Standby output voltage | 5V |
| 1.2.10 | Output current | 2A |
| 1.2.11 | Voltage regulation | line regulation: $\pm 0.5\%$; load regulation $\pm 2\%$; voltage regulation accuracy $\pm 5\%$ |
| 1.2.12 | Output ripple & noise. | 2% |

1.3 Protection

| No. | Protection item | MP300S | | |
|-------|-----------------------------|-----------------------|-----------------------|--------------------|
| | | Main output | 5 Vsb | |
| 1.3.1 | Over current protection | 120%~160% | 120%~200% | |
| | | hiccup, auto recovery | hiccup, auto recovery | |
| 1.3.2 | Short circuit protection | hiccup, auto recovery | hiccup, auto recovery | |
| 1.3.3 | Output voltage protection | 110%~150% | / | |
| | | latch off | / | |
| 1.3.4 | Input brown in/out | brown in | brown out | minimum hysteresis |
| | | $\leq 85V_{ac}$ | $\geq 60V_{ac}$ | 5V _{ac} |
| 1.3.5 | Over temperature protection | auto recovery | | |

1.4 Signals

| No. | Electrical Characteristics | MP300S |
|-------|----------------------------|---------------------------------------------------------------------------|
| 1.4.1 | PS_ON | Low (0~0.8V) or floating= ON, High(3~5V) = OFF |
| 1.4.2 | 5VFAN | Fan powered |
| 1.4.3 | Power good | Combined AC Fail and DC OK signal Low(0~0.8V)= Fail, High(3~5.5V) = OK |

2. Isolation

2.1 Insulation resistance

| | |
|-----------------|----------------------------------------|
| Input to Output | DC500V 10 MΩ. (at room temperature) |
| Input to PE | DC500V 10 MΩ. (at room temperature) |
| Output to PE | DC500V 10 MΩ. (at room temperature) |

2.2 Dielectric strength

| | |
|-----------------|----------------------------|
| Input to Output | 4000Vac 50Hz 1minute ≤10mA |
| Input to PE | 1500Vac 50Hz 1minute ≤10mA |
| Output to PE | 1500Vac 50Hz 1minute ≤10mA |

3. Safety

- * IEC 60601-1, IEC 62368-1
- * ANSI/AAMI ES 60601-1
- * CSA C22.2 No. 60601-1
- * Protection type: Class I

4. EMC

4.1 EMI

The power supply shall comply with the following criterion:

1) Conduction Emission :

- * CISPR 11, CLASS B

2) Radiated Emission :

* CISPR 11, CLASS B

3) Voltage Fluctuation & Flicker :

* IEC 61000-3-3 Class A

4) Harmonic Distortion) :

* IEC 61000-3-2 Class A

4.2 EMS

The power supply shall comply with the following criterion:

1) ESD: IEC 61000-4-2 Class A

8KV contact discharges & 15KV air discharges

2) EFT: IEC 61000-4-4 Class A

Power supply lines: $\pm 2\text{kV}$

3) SURGE: IEC 61000-4-5 Class A

Line to line: $\pm 1\text{kV}$, line to earth: $\pm 2\text{kV}$, 12 ohms

4) DIP: IEC 61000-4-11 Criterion A/B/C

| Drop | Time | Standard |
|-----------|--------|----------|
| 0% U_t | 10ms | A |
| 0% U_t | 20ms | B |
| 70% U_t | 500ms | B |
| 0% U_t | 5000ms | B |

5) Conducted Immunity: IEC 61000-4-6 Class A

6) Radiated Immunity: IEC 61000-4-3 Class A

7) Magnetic Fields: IEC 61000-4-8 Class A

5. Reliability and environmental requirement

5.1 Temperature

* Operating temperature : -10°C to $+70^{\circ}\text{C}$, See the derating curve below.

* Storage temperature : -40°C to $+80^{\circ}\text{C}$.

5.2 Humidity

* Operating: From 5% to 95% relative humidity (non-condensing).

* Storage: From 5% to 100% relative humidity (non-condensing).

5.3 Altitude

* Operating: -60 to 5000 m

* Storage: up to 5000 m

5.4 Cooling method

* Cooling convection 300 W.

5.5 Vibration

* 10-500Hz, 19.6m/s² (2G), 30minutes each along X, Y and Z axis.

5.6 Shock

* 98m/s² (10G), 6ms, once each X, Y and Z axis.

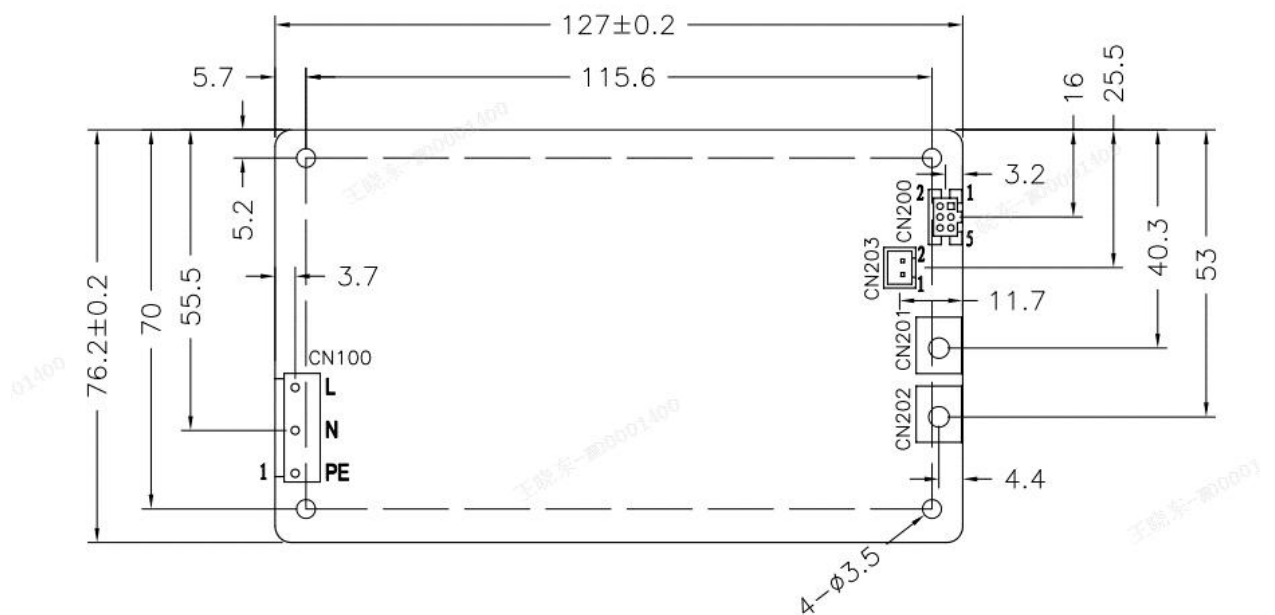
6. Dimension

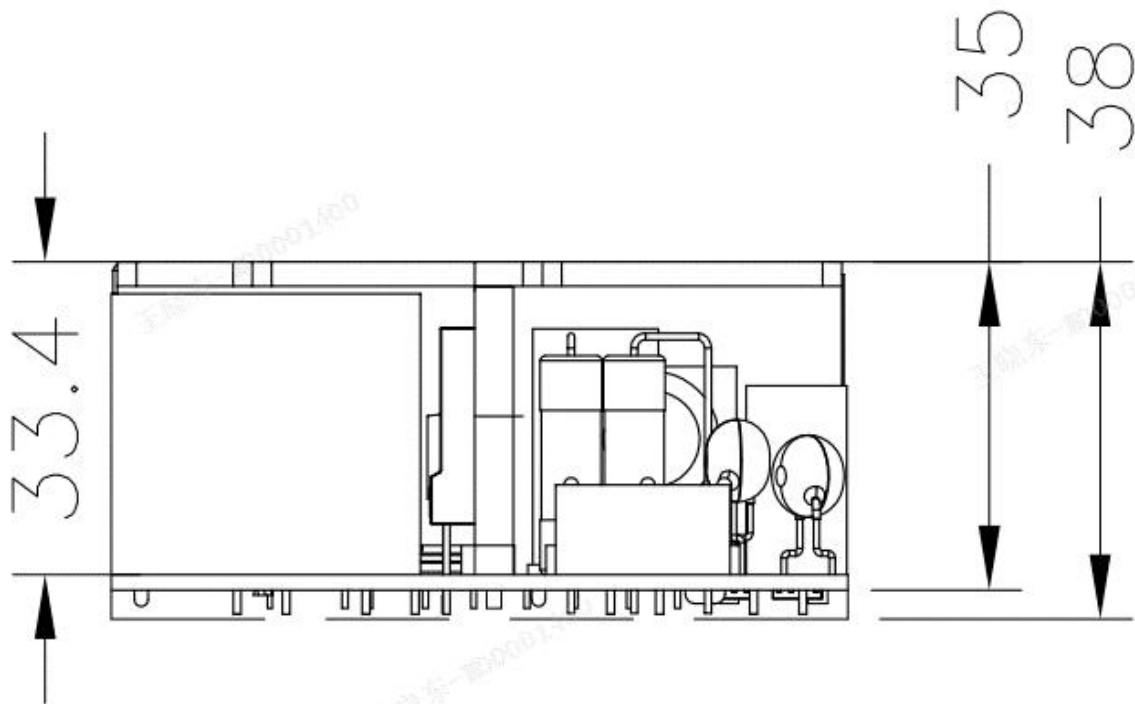
6.1 PCB

*Length*Width*High: 127mm*76.2mm*38mm

6.2 Mechanical specification

6.2.1 Open Frame Unit



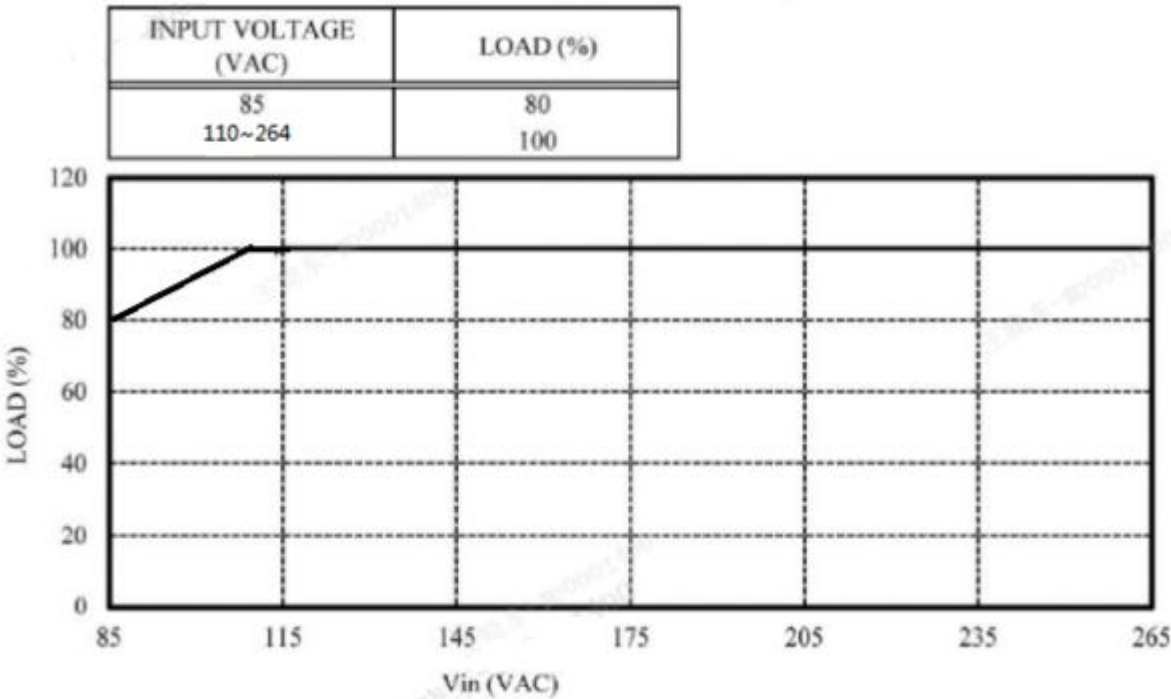


| | PIN | | Terminal model | Matching terminals and plastic shell |
|-------|-----|------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| CN100 | 1 | PE | VH-5ADW3(华富(嘉得电子)) (Or equivalent) | 华富: VH-5Y 华富: VH (Or equivalent) |
| | 3 | N | | |
| | 5 | L | | |
| CN201 | 1 | VOUT+ | M4 OUTPUT TERMINAL | |
| CN202 | 1 | VOUT- | M4 OUTPUT TERMINAL | |
| CN200 | 1 | PS_ON | 胜蓝 (12002W00-2X3P-L-S1-23-HF)/ 加炜 (A2006WV-2x3P-6T2-5eHK2.3) (Or equivalent) | 胜蓝: 12002H00-2X3P-L 胜蓝: 12002T0P-2E (Or equivalent) |
| | 2 | Power Good | | |
| | 3 | DGND | | |
| | 4 | NC | | |
| | 5 | DGND | | |
| | 6 | 5Vsb | | |
| CN203 | 1 | DGND | XH-2A (华富(嘉得电子)) (Or equivalent) | 华富: XH-2Y 华富: XH (Or equivalent) |
| | 2 | 5Vsb | | |

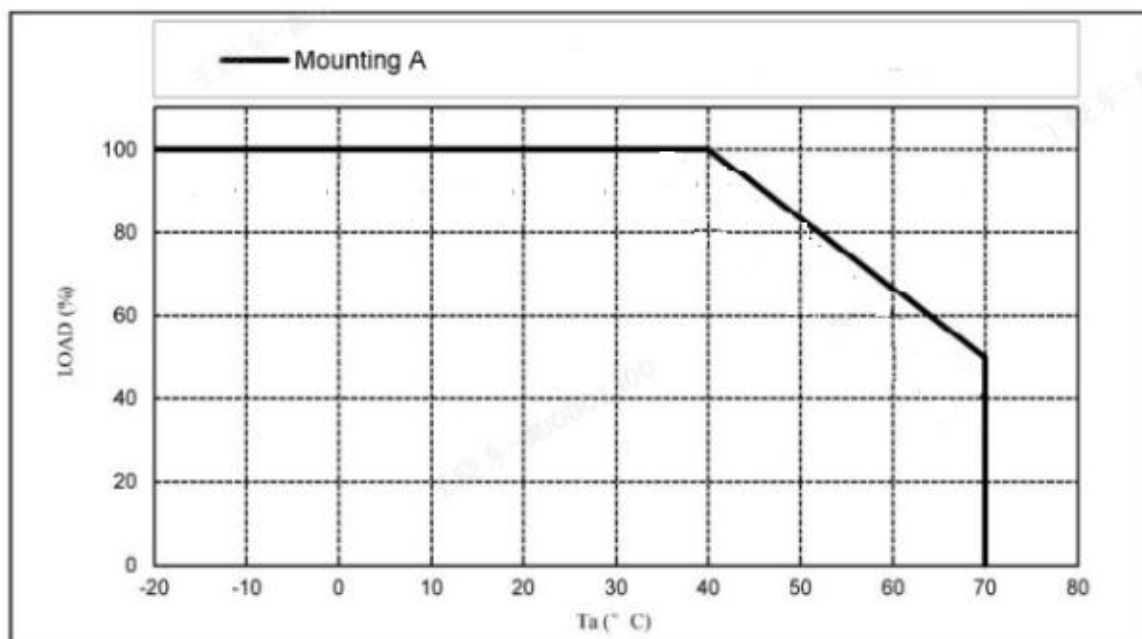
6.3 Derating curve

6.3.1 Cooling convection 300 W

Derating versus Input Voltage:



Derating and ambient temperature:



7. Other characteristics

7.1 MTBF

* >100,000 Hour, @230Vac, 25°C, Rated output

7.2 Weight

* < 550 g