E537595

# AC/DC 500W Enclosed Switching Power Supply

**EFO-PS500PGF-xx_EN**

## FEATURES AND BENEFITS

- Universal AC input:/Full range: 90~264Vac
- Withstand 300Vac Surge input for 5seconds
- Slim Low profile, High 31mm
- Protection function: short circuit/over loading/over voltage
- 130% Peak load capacity capacity ( 500mS500mS )
- Built in active PFC function
- LED indicator for power on
- Fan less design, natural air cooling
- Wide operating range: 4040℃~70 70℃
- Half filled glue able to adapt to more demanding environments (Environment with high dust and humidity)
- High Efficiency (Typical:94%), and High Reliability
- 100% full load burn in test
- 3 years warranty

## PRODUCT SPECIFICATIONS

| | |
|---|---|
| Dimensions | 232.00 x 81.00 x 31.00 mm |
| Weight | 870g (Typ.) |
| Case Material | Metal (AL5052, SGCC) |
| Cooling Method | Free air flow |

## SELECTION GUIDE

| Certification | Part No.* | Output Power (W) | Nominal Output Voltage and Current (Vo/Io) | Output Voltage Adjustable Range ADJ (V) | Efficiency at 230VAC (%) Typ |
|---|---|---|---|---|---|
| | EFO-500PGF-12 | 500 | 12V/41.7A | 11.4-12.6 | 94 |
| | EFO-500PGF-24 | 500 | 24V/20.8A | 22.8V-25.2V | 94.5 |
| | EFO-500PGF-36 | 500 | 36V/13.9A | 34.2V-37.8V | 95 |
| | EFO-500PGF-48 | 500 | 48V/10.45A | 45.6V-50.4V | 95 |

Note: The product picture is for reference only. For details, please refer to the actual product.

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## INPUT SPECIFICATIONS

| ITEM | OPERATING CONDITIONS | | MIN | TYPE | MAX | UNIT |
|---|---|---|---|---|---|---|
| INPUT VOLTAGE RANGE | AC input | | 90 | --- | 264 | VAC |
| | DC input | | 127 | --- | 370 | VDC |
| NOMINAL INPUT VOLTAGE | AC input | | 100 | --- | 240 | VAC |
| | DC input | | 140 | --- | 339 | VDC |
| SURGE VOLTAGE | 5S | | --- | 300 | --- | VAC |
| INPUT VOLTAGE FREQUENCY | | | 47 | --- | 63 | Hz |
| INPUT CURRENT | 115VAC | 25°C, Full Load | --- | --- | 4.85 | A |
| | 230VAC | | --- | --- | 2.6 | |
| INRUSH CURRENT | 115VAC | 25°C, Cold start | --- | 30 | --- | |
| | 230VAC | 25°C, Cold start | --- | 60 | --- | |
| POWER FACTOR | 115VAC | Full load | 0.98 | --- | --- | --- |
| | 230VAC | Full load | 0.95 | --- | --- | --- |
| EFFICIENCY | 12V | 25°C (230Vac) | --- | 94.5 | --- | % |
| | 24V | | --- | 95 | --- | |
| | 34V | | --- | 95 | --- | |

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## OUTPUT SPECIFICATIONS

| ITEM | OPERATING CONDITIONS | | MIN | TYPE | MAX | UNIT |
|---|---|---|---|---|---|---|
| CURRENT RANGE NOTE 1 | 12V | | 0 | --- | 41.7 | A |
| | 24V | | 0 | --- | 20.8 | |
| | 36V | | 0 | --- | 13.9 | |
| | 48V | | 0 | --- | 10.45 | |
| PEAK CURRENT | 12V (100ms) | | --- | 41.7 | --- | |
| | 24V (100ms) | | --- | 20.8 | --- | |
| | 36V (100ms) | | --- | 13.9 | --- | |
| | 48V (100ms) | | --- | 10.45 | --- | |
| OUTPUT VOLTAGE ACCURACY | -30~70℃ | | --- | ±1.0 | --- | % |
| LINE REGULATION | -40~70℃ | | --- | ±0.3 | --- | |
| LOAD REGULATION | -40~70℃ | | --- | ±0.5 | --- | |
| OVERSHOOT AND UNDERSHOOT | -40~70℃ | | --- | --- | 5 | |
| RIPPLE & NOISE NOTE 2 | 12V | 0<Ta≤70℃ | --- | 200 | -- | mV |
| | 24V/36V/48V | | --- | 400 | --- | |
| | 12V/24V/36V/48V | -30<Ta≤0℃, or Load<10% | --- | 480 | --- | |
| TEMPERATURE COEFFICIENT | 0~50℃ | | --- | ±0.03 | --- | %/℃ |
| SET-UP TIME / RISE TIME | 115VAC | 25℃, Full Load | --- | --- | 3000/ 50 | ms |
| | 230VAC | | --- | --- | 1500/ 50 | |
| HOLD-UP TIME | 115/230VAC | 25℃, Full Load | 12 | --- | --- | ms |
| SHORT CIRCUIT | Long-term mode, auto recovery | | | | | |
| OVER-CURRENT | 110%~170%, hiccup mode, Auto recovery | | | | | |
| OVER VOLTAGE | 12V | | 45.8A - 66.72A | | Hiccup. Auto recovery when cancel overcurrent | |
| | 24V | | 22.8A - 33.28A | | | |
| | 36V | | 15.29A - 22.24A | | | |
| | 48V | | 11.44A - 16.64A | | | |
| OVER-TEMPERATURE | Output voltage shutdown ,But auto recovery when temperature goes down | | | | | |

Note: 1.All parameters NOT specially mentioned are measured at rated input, rated load and 25°C of ambient temperature;

2.Measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uF & 10uF parallel capacitor.

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c UL us E537595 CB CE RoHS 3 years Warranty

# AC/DC 500W Enclosed Switching Power Supply

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## GENERAL SPECIFICATIONS

| ITEM | | OPERATING CONDITIONS | MIN | TYPE | MAX | UNIT |
|---|---|---|---|---|---|---|
| Withstand Voltage | Primary – Secondary | 10mA | --- | 3.75K | --- | VAC |
| | Primary – PG | | --- | 2.0K | --- | |
| | Secondary - PG | | --- | 1.25K | --- | VDC |
| LEAKAGE CURRENT | INPUT - PG | 240VAC Input, 25℃, Frequency:63Hz | --- | --- | 0.75 | mA |
| | INPUT - OUTPUT | | --- | --- | 0.25 | |
| ISOLATION RESISTANCE | | | 100 | --- | --- | MΩ |
| OPERATING TEMPERATURE | | No condensing (refer to the derating curve) | -30 | -- | +70 | ℃ |
| STORAGE TEMPERATURE | | | -40 | --- | +85 | ℃ |
| OPERATING HUMIDITY | | Non-condensing | 20 | --- | 90 | %RH |
| STORAGE HUMIDITY | | Non-condensing | 10 | --- | 95 | %RH |
| SAFETY STANDARD | | | | | | |
| MTBF | | MIL-217 Method 2 Components Stress Method | 25℃ | >200,000 Hrs | | |

## ELECTROMAGNETIC COMPATIBILITY (EMC)

| | | | |
|---|---|---|---|
| EMISSIONS | EMI Conduction & Radiation | EN55032 CLASS B (450mm*450mm*3mm Iron Plate) | |
| | Harmonic current | EN61000-3-2 CLASS A | |
| IMMUNITY | ESD | EN61000-4-2 Level 4 | Criteria A |
| | RS | EN61000-4-3 Level 2 | |
| | EFT | EN61000-4-4 Level 3 | |
| | Surge | EN61000-4-5 Level 4 | |
| | CS | EN61000-4-6 Level 2 | |
| | PFMF | EN61000-4-8 Level 4 | |
| | Voltage dip, short interruption and voltage variation | EN61000-4-11 | Criteria B or Criteria C |

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# AC/DC 500W Enclosed Switching Power Supply

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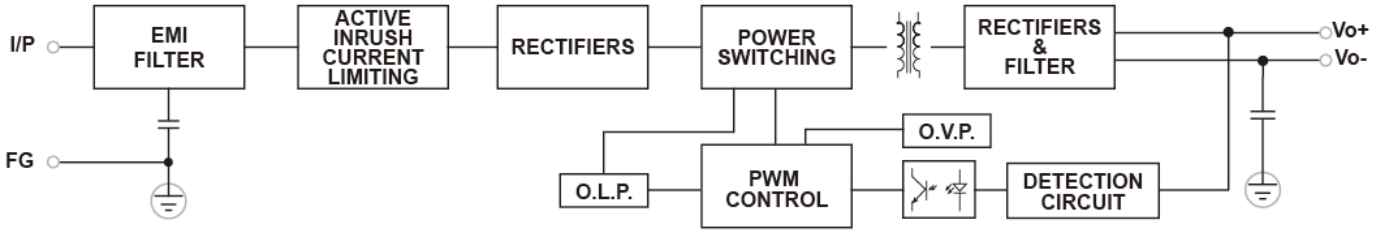
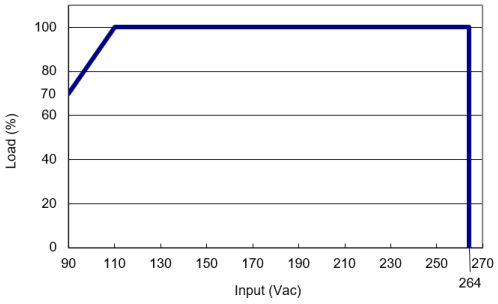
## BLOCK DIAGRAM

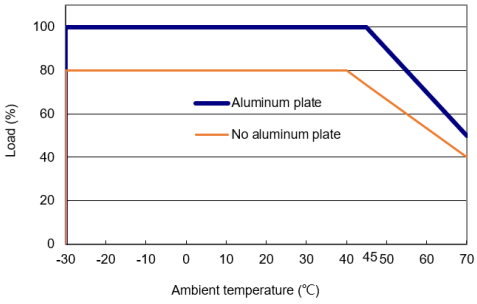



## PRODUCT CHARACTERISTIC CURVE

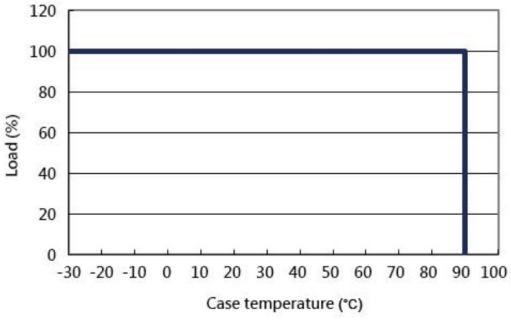
**Input Voltage-Load derating curve**




**Derating curve**




**Case temperature curve**




Note: 1. With an AC input voltage between 85-100VAC and a DC input between 120-140VDC the output power must be derated as per the temperature derating curves;
2. This product is suitable for applications using natural air cooling. Applications in a closed environment may impact the derating, efficiency, and life of the product.

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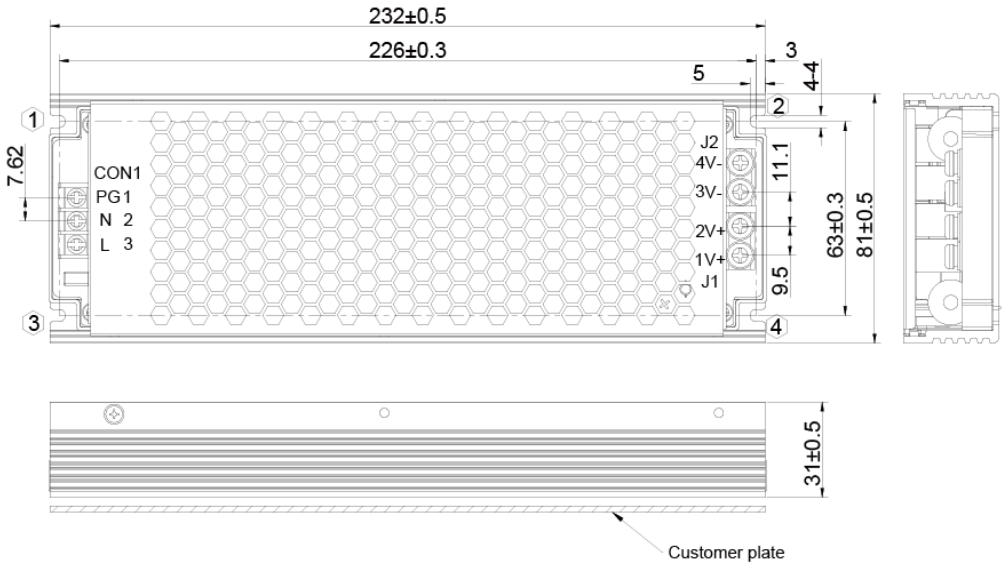
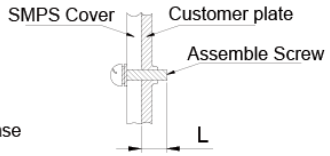
## MECHANICAL SPECIFICATION




| Mounting Position | Mounting Method | Mounting Tag Number | Screw Type | Lmax | Mounting Torque (max) |
|---|---|---|---|---|---|
| Bottom Mounting | Fixing by screws | 1 — 4 | M3 | / | 6.5Kgf.cm (max) |




Remarks：1.For safety purpose, the length of screw inside the power supply case shall comply with the above table (refer the right drawing)

Notice:
1. Dimensional Unit:mm
2. Unmarked Tolerance is GB/T 1804-m
3. Choose the best installation method.

1. Instruction of the AC Input Connectors

| | Part number | Input | Connector Specification |
|---|---|---|---|
| CON1 | 1 | PG | Pin spacing 7.62 Terminal block/ 3PinConnector/ -40℃~105℃/94V-0 |
| | 2 | AC (N) | |
| | 3 | AC (L) | |

2. Instruction of the DC Output Connectors

| | Part number | Connector Specification | Output marks and specifications |
|---|---|---|---|
| J1 | 1 | 19*11*6mm/ 2PIN/90～/M4 / Brass/ Tin-plating | V+ |
| | 2 | | V+ |
| J2 | 3 | 19*11*6mm/ 2PIN/ 90～/M4 / Brass/ Tin-plating | V- |
| | 4 | | V- |

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## ALUMINUM PLATE MECHANICAL SPECIFICATION

In order to meet the requirements of the derating curve, the product must be installed on an aluminum plate. It is recommended that the size of the aluminum plate be as shown in the following figure. In order to optimize heat dissipation performance, the surface of the aluminum plate must be smooth (or coated with heat dissipation oil), and the product must be installed in the center position of the aluminum plate and locked.