

# MPG-120S Series

## Single Output, 120W Green, Open Frame AC/DC Power Supplies



### Key Features:

- 120W Output Power
- 150W With Only 7 CFM
- Universal 85-264 AC Input
- EN 60950 Approved (UL)
- Meets ErP Directive
- Compact 3 x 5 Inch Size
- PFC Meets EN 61000-3
- Optional +5V SB Output
- >400 kHour MTBF



### MicroPower Direct

292 Page Street  
Suite D  
Stoughton, MA 02072  
USA

T: (781) 344-8226  
F: (781) 344-8481  
E: sales@micropowerdirect.com  
W: www.micropowerdirect.com



### Electrical Specifications

Specifications typical @ +25°C, nominal input voltage & rated output current, unless otherwise noted. Specifications subject to change without notice.

#### Input

| Parameter                 | Conditions                          | Min. | Typ. | Max. | Units |
|---------------------------|-------------------------------------|------|------|------|-------|
| Input Voltage Range       | Universal                           | 85   |      | 264  | VAC   |
|                           |                                     | 110  |      | 373  | VDC   |
| Input Frequency           |                                     | 47   |      | 63   | Hz    |
| Input Filter              | Meets EN 55022 Class B; FCC Class B |      |      |      |       |
| Input Current             | See Model Selection Guide           |      |      |      |       |
| Inrush Current            | Cold Start, 115 VAC                 |      |      | 30.0 | A Pk  |
|                           | Cold Start, 230 VAC                 |      |      | 60.0 |       |
| Power Factor Correction   | Meets EN 61000-3-2/3 Class A        |      |      |      |       |
| Leakage Current           |                                     |      |      | 0.25 | mA    |
| No Load Power Consumption |                                     |      |      | 0.5  | W     |

#### Output

| Parameter                | Conditions                | Min. | Typ.  | Max. | Units |
|--------------------------|---------------------------|------|-------|------|-------|
| Output Voltage/Current   | See Model Selection Guide |      |       |      |       |
| Output Voltage Tolerance | See Note 1                |      | ±1.0  |      | %     |
| Line Regulation          | See Note 2                |      | ±1.0  |      | %     |
| Load Regulation          | See Note 3                |      | ±1.0  |      | %     |
| Ripple & Noise (20 MHz)  | See Note 4                |      | ±1.0  |      | %     |
| Hold-Up Time             | 115 VAC                   |      | 20    |      | mSec  |
|                          | 230 VAC                   |      | 40    |      |       |
| Temperature Coefficient  |                           |      | ±0.05 |      | %/°C  |
| Over Voltage Protection  |                           |      | 140   |      | %     |
| Short Circuit Protection | Continuous (Autorecovery) |      |       |      |       |

#### General

| Parameter             | Conditions      | Min.  | Typ.  | Max. | Units |
|-----------------------|-----------------|-------|-------|------|-------|
| Isolation Voltage     | Input to Output | 3,000 |       |      | VAC   |
| Isolation Resistance  | 500 VDC         |       | 100   |      | MΩ    |
| Isolation Capacitance |                 |       | 2,200 |      | pF    |

#### EMI Characteristics

| Parameter                       | Standard      | Min. | Typ. | Max.                                   | Units |
|---------------------------------|---------------|------|------|--|-------|
| Radiated Emissions, See Note 5  | EN 55022      |      |      | Class B                                |       |
| Conducted Emissions, See Note 5 | EN 55022      |      |      | Class B                                |       |
| ESD                             | EN 61000-4-2  |      |      | Criteria A; ±8 kV Air/±6 kV Contact    |       |
| RS                              | EN 61000-4-3  |      |      | Criteria A; 10V/m                      |       |
| EFT                             | EN 61000-4-4  |      |      | Criteria A; ±2 kV Line & PE            |       |
| Surge                           | EN 61000-4-5  |      |      | Criteria A; L-N: ±1kV, L/N-PE: ±2kV    |       |
| CS                              | EN 61000-4-6  |      |      | Criteria A; 10 Vrms                    |       |
| PFMF                            | EN 61000-4-8  |      |      | Criteria A; 10A/ms                     |       |
| Voltage Dips, See Note 6        | EN 61000-4-11 |      |      | Criteria A; Volt. Dips >95%, 0.5 Cycle |       |
|                                 |               |      |      | Criteria A; Volt. Dips 30%, 25 Cycles  |       |
|                                 |               |      |      | Criteria A/B; Volt. Dips 60%, 5 Cycles |       |
| Switching Frequency             | Fixed         |      | 65   |  | kHz   |

#### Environmental

| Parameter                   | Conditions                               | Min. | Typ. | Max. | Units |
|-----------------------------|--|------|------|------|-------|
| Operating Temperature Range | Ambient                                  | -20  | +25  | +70  | °C    |
| Storage Temperature Range   |  | -40  |      | +85  | °C    |
| Cooling                     | Free Air Convection (See Derating Curve) |      |      |      |       |
| Humidity                    | RH, Non-condensing                       |      |      | 95   | %     |

#### Physical

|        |  |  |  |  |  |
|--------|--|--|--|--|--|
| Size   | 5.00 x 3.00 x 1.35 Inches (127.00 x 76.20 x 34.2 mm) |  |  |  |  |
| Weight | 9.87 Oz (0.280 kg)                                   |  |  |  |  |

#### Reliability Specifications

| Parameter        | Conditions                      | Min. | Typ. | Max. | Units  |
|------------------|---------------------------------|------|------|------|--------|
| MTBF             | MIL HDBK 217F, 25°C, Gnd Benign | 400  |      |      | kHours |
| Safety Standards | UL 60950, EN 60950              |      |      |      |        |

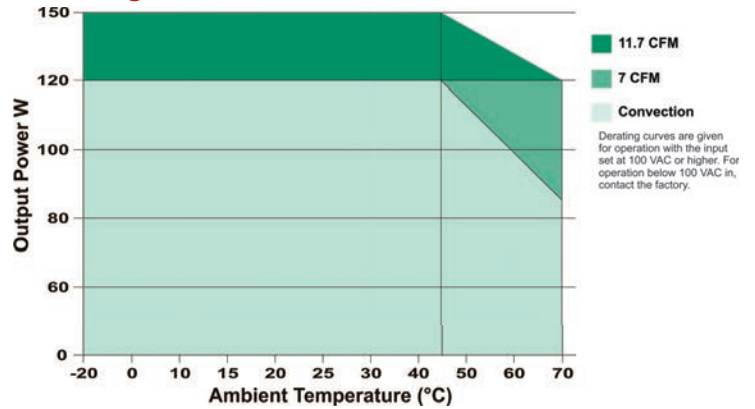
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| Model Number  | Input       |         | No. | Voltage (VDC) | Output |                |      | Max Output Power (W) |                    | Efficiency (% , Typ) |
|---------------|-------------|---------|-----|---------------|--------|----------------|------|----------------------|--------------------|----------------------|
|               | Current (A) |         |     |               | Rated  | Current (A)    |      | Convection Cooled    | With 7CFM Air Flow |                      |
|               | 115 VAC     | 230 VAC |     |               |        | Max. (W/7 CFM) | Min. |                      |                    |                      |
| MPG-120S-12   | 2.50        | 1.25    |     | 12.0          | 10.00  | 12.50          | 0.00 | 120                  | 150                | 88                   |
| MPG-120S-12SB | 2.50        | 1.25    | 1   | 12.0          | 10.00  | 12.50          | 0.00 | 120                  | 150                | 88                   |
|               |             |         | 2   | 5.0           | 0.10   | 0.10           | 0.00 |                      |                    |                      |
| MPG-120S-24   | 2.50        | 1.25    |     | 24.0          | 5.00   | 6.25           | 0.00 | 120                  | 150                | 89                   |
| MPG-120S-24SB | 2.50        | 1.25    | 1   | 24.0          | 5.00   | 6.25           | 0.00 | 120                  | 150                | 89                   |
|               |             |         | 2   | 5.0           | 0.10   | 0.10           | 0.00 |                      |                    |                      |
| MPG-120S-48   | 2.50        | 1.25    |     | 48.0          | 2.50   | 3.13           | 0.00 | 120                  | 150                | 89                   |
| MPG-120S-48SB | 2.50        | 1.25    | 1   | 48.0          | 2.50   | 3.13           | 0.00 | 120                  | 150                | 89                   |
|               |             |         | 2   | 5.0           | 0.10   | 0.10           | 0.00 |                      |                    |                      |

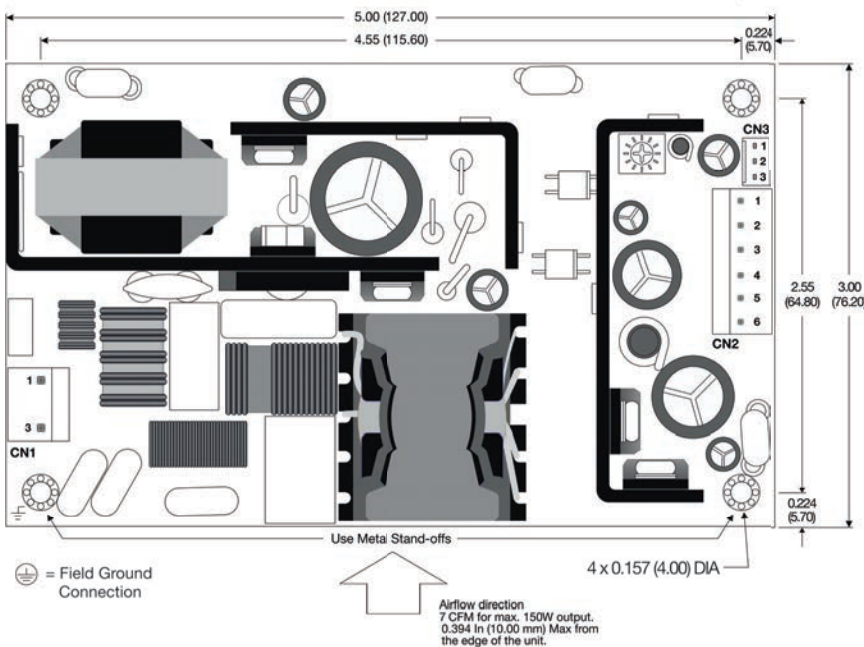
**Notes:**

1. Output voltage tolerance is measured at 110 VAC input and 60% load.
2. Line regulation is measured at a 115 VAC input with the rated load. The line is varied  $\pm 10\%$ .
3. Load regulation is specified for a load change of  $60\% \pm 40\%$  (of full load).
4. Output ripple is measured at 20 MHz bandwidth and rated load using  $0.1 \mu F$  and  $10 \mu F$  capacitors connected in parallel as close to the power supply terminals as possible.
5. To meet the EMI limits, the mounting holes must be connected together (by using metal standoffs).
6. The unit meets EN 61000-4-11 criteria A for voltage dips of 60% at 100 VAC input. At 240 VAC input, it meets criteria B.
7. These units will operate at no load without damage. However, they may not meet all specifications.
8. The optional remote on/off function is active low. Contact the factory for details.
9. Each unit includes an input fuse (250V/3.15A). Since this fuse is not field replaceable, it is recommended that an external fuse of the same size be used on the input of the power supply for protection.

**Derating Curve**



**Mechanical Dimensions**



**Connections**

**Input Connector (CN1):**

- Molex 09-65-2038 or equivalent (one pin removed)
- Mating Housing: Molex 09-50-1031 or equivalent

| Pin | Function   |
|-----|------------|
| 1   | AC-Neutral |
| 2   | Removed    |
| 3   | AC-Line    |

**Safety Ground:**

The mounting holes marked "Use metal standoffs" should be connected to the system earth ground via metal spacers or a cable. The input side mounting hole marked "FG" provides the safety earth ground for the unit. This connection should be locked to prevent possible loosening. Connecting the output side mounting hole improves EMI.

**Output Connector (CN2):**

- Molex 09-65-2048 or equivalent
- Mating Housing: Molex 09-50-1041 or equivalent

| Pin | Function          |
|-----|-------------------|
| 1   | +V <sub>OUT</sub> |
| 2   | +V <sub>OUT</sub> |
| 3   | +V <sub>OUT</sub> |
| 4   | -V <sub>OUT</sub> |
| 5   | -V <sub>OUT</sub> |
| 6   | -V <sub>OUT</sub> |

**Connector (CN3):**

- Molex 5045-03A or equivalent
- Mating Housing: Molex 5043-03 or equivalent

| Pin | Function      |
|-----|---------------|
| 1   | Remote On/Off |
| 2   | Grnd          |
| 3   | +5Vsb         |

Connector CN3 is only installed on "SB" models

**Notes:**

- All dimensions are typical in inches (mm)
- Tolerance x.xx =  $\pm 0.02$  ( $\pm 0.50$ )



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