

# MPE-320S Series

## Single Output, 320W Compact, Enclosed AC/DC Power Supplies



### Key Features:

- 320W Output Power
- Selectable 88-264 AC Input
- EN 60950 Approved
- Internal Fan With Control
- Eight Single Output Models
- Meets EN55022
- >188 kHour MTBF
- Compact Metal Enclosure



RoHS Compliant



### MicroPower Direct

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### 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           | Switch Selectable         | 88   | 115  | 132  | VAC   |
|                               |                           | 176  | 220  | 264  |       |
|                               |                           | 248  |      | 370  |       |
| Input Frequency               |                           | 47   |      | 63   | Hz    |
| Input Current                 | See Model Selection Guide |      |      |      |       |
| Inrush Current                | Cold Start, 115 VAC       |      | 20.0 |      | A Pk  |
|                               | Cold Start, 230 VAC       |      | 40.0 |      |       |
| Safety Ground Leakage Current | 115 VAC                   |      |      | 2.0  | mA    |
|                               | 230 VAC                   |      |      | 3.5  |       |

#### Output

| Parameter                            | Conditions                    | Min. | Typ.  | Max.       | Units |
|--------------------------------------|-------------------------------|------|-------|------------|-------|
| Output Voltage                       | See Model Selection Guide     |      |       |            |       |
| Output Current                       | See Model Selection Guide     |      |       |            |       |
| Output Voltage Adjustment            | See Model Selection Guide     |      |       |            |       |
| Output Voltage Tolerance, See Note 1 | See Model Selection Guide     |      |       |            |       |
| Ripple & Noise (20 MHz), See Note 2  | See Model Selection Guide     |      |       |            |       |
| Hold-Up Time                         | 115 VAC                       |      | 20    |            | mSec  |
|                                      | 230 VAC                       |      | 24    |            |       |
| Set-Up Time                          | 230 VAC                       |      | 2,000 |            | mSec  |
| Rise Time                            | 230 VAC                       |      | 20    |            | mSec  |
| Temperature Coefficient              |                               |      | ±0.02 |            | %/°C  |
| Short Circuit Protection             | Continuous (Autorecovery)     |      |       |            |       |
| Over Voltage Protection              | See Note 3                    | 115  |       | 135        | %     |
| Overload Protection                  | See Note 4                    | 105  |       | 135        | %     |
| Fan Control (Over Temp Control)      | Fan On, 5V - 15 Vout          |      |       | RT1 ≥65 °C |       |
|                                      | Fan On, 24V - 48 Vout         |      |       | RT1 ≥70 °C |       |
|                                      | Fan Off, 5V - 15 Vout         |      |       | RT1 ≤55 °C |       |
|                                      | Fan Off, 24V - 48 Vout        |      |       | RT1 ≤65 °C |       |
|                                      | Output Shutdown, 5V - 15Vout  |      |       | RT1 ≥70 °C |       |
|                                      | Output Shutdown, 24V - 48Vout |      |       | RT1 ≥80 °C |       |

#### General

| Parameter            | Conditions                    | Min.                                       | Typ.             | Max. | Units |  |
|----------------------|-------------------------------|--|------------------|------|-------|--|
| Isolation Voltage    | Input to Output               | 3,000                                      |                  |      | VAC   |  |
|                      | Input to Ground               | 1,500                                      |                  |      |       |  |
|                      | Output to Ground              | 500  |                  |      |       |  |
| Isolation resistance | 500 VDC                       |  | 100              |      | MΩ    |  |
| EMC Compliance       | EMI/RFI                       | Conducted EN 55022; EN 61000-3-2, -3       |                  |      |       |  |
|                      | Electrostatic Discharge (ESD) | IEC/EN 61000-4-2, -6, -8, -11              |                  |      |       |  |
|                      |                               | RF Field Susceptibility                    | IEC/EN61000-4-3  |      |       |  |
|                      |                               | Electrical Fast Transients/Bursts On Mains | IEC/EN 61000-4-4 |      |       |  |
| Switching Frequency  | Surge                         |  | 75               |      | kHz   |  |
|                      |                               |  |                  |      |       |  |

#### Environmental

| Parameter                   | Conditions                         | Min. | Typ. | Max. | Units |
|-----------------------------|------------------------------------|------|------|------|-------|
| Operating Temperature Range | Ambient                            | -10  | +25  | +60  | °C    |
| Storage Temperature Range   |                                    | -20  |      | +85  | °C    |
| Cooling                     | Internal Fan With Built In Control |      |      |      |       |
| Humidity                    | RH, Non-condensing                 |      |      | 95   | %     |

#### Physical

|               |   |  |  |  |  |
|---------------|---|--|--|--|--|
| Case Size     | 8.46 x 4.52 x 1.97 Inches (215.0 x 115.0 x 50.0 mm) |  |  |  |  |
| Case Material | Vented Metal Enclosure                              |  |  |  |  |
| Weight        | 38.1 Oz (1.08 kg)                                   |  |  |  |  |

#### Reliability Specifications

| Parameter        | Conditions  | Min. | Typ. | Max. | Units  |
|------------------|---|------|------|------|--------|
| MTBF             | MIL HDBK 217F, 25°C, Gnd Benign   | 188  |      |      | kHours |
| Safety Standards | IEN 60950, IEC 60950  |      |      |      |        |
| Vibration        | 10-500 Hz, 2G 10 min/1 Cycle. Period of 60 min each along X, Y & Z Axis |      |      |      |        |

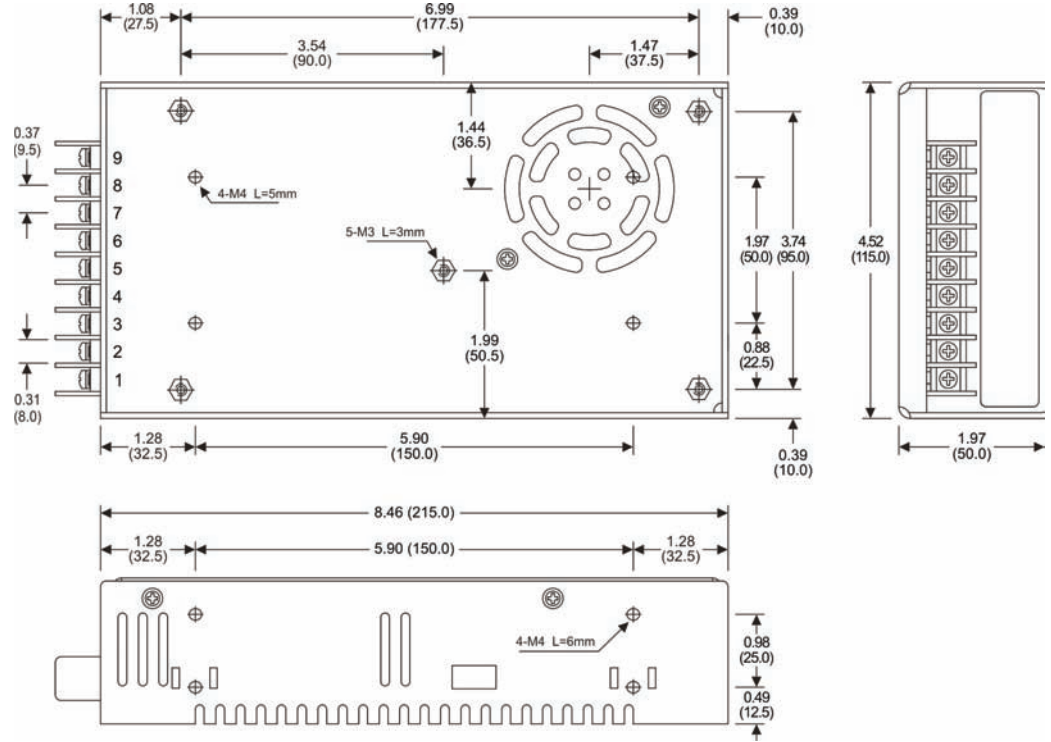
# Model Selection Guide

| Model Number  | Input       |         | Output        |             |             |           | Output Tolerance (%) | Ripple & Noise (mV p-p) | Efficiency (% Typ) |
|---------------|-------------|---------|---------------|-------------|-------------|-----------|----------------------|-------------------------|--------------------|
|               | Current (A) |         | Voltage (VDC) |             | Current (A) |           |                      |                         |                    |
|               | 115 VAC     | 230 VAC | Rated         | Adjust      | Rated       | Range     |                      |                         |                    |
| MPE-320S-05   | 6.0         | 3.5     | 5.0           | 4.5 - 5.7   | 50.0        | 0 to 50.0 | ±2.0                 | 150                     | 77                 |
| MPE-320S-7.5  | 6.0         | 3.5     | 7.5           | 6.0 - 9.0   | 36.0        | 0 to 36.0 | ±2.0                 | 150                     | 80                 |
| MPE-320S-12   | 6.0         | 3.5     | 12.0          | 10.0 - 13.2 | 25.0        | 0 to 25.0 | ±1.0                 | 150                     | 82                 |
| MPE-320S-13.5 | 6.0         | 3.5     | 13.5          | 12.0 - 15.0 | 22.0        | 0 to 22.0 | ±1.0                 | 150                     | 83                 |
| MPE-320S-15   | 6.0         | 3.5     | 15.0          | 13.5 - 18.0 | 20.0        | 0 to 20.0 | ±1.0                 | 150                     | 84                 |
| MPE-320S-24   | 6.0         | 3.5     | 24.0          | 20.0 - 26.4 | 12.5        | 0 to 12.5 | ±1.0                 | 150                     | 86                 |
| MPE-320S-27   | 6.0         | 3.5     | 27.0          | 26.0 - 32.0 | 11.0        | 0 to 11.0 | ±1.0                 | 200                     | 86                 |
| MPE-320S-48   | 6.0         | 3.5     | 48.0          | 41.0 - 56.0 | 6.5         | 0 to 6.5  | ±1.0                 | 240                     | 87                 |

**Notes:**

- Output voltage tolerance includes the effects of set point accuracy, line regulation and load regulation.
- Ripple and noise is measured at 20 MHz bandwidth using a 12 inch twisted pair wire to connect to the power supply terminals. A 0.1  $\mu$ F and a 47  $\mu$ F capacitor are connected in parallel as close to the power supply terminals as possible.
- Overvoltage protection is provided by a "hiccup mode" circuit. The unit recovers automatically when the fault condition is removed.
- Overload protection is provided by fold-back current limiting. The unit recovers automatically when the fault condition is removed.
- It is recommended that a fuse be used on the input of a power supply for protection. For the MPE-320S series, a 10A/250 VAC slow blow should be used.

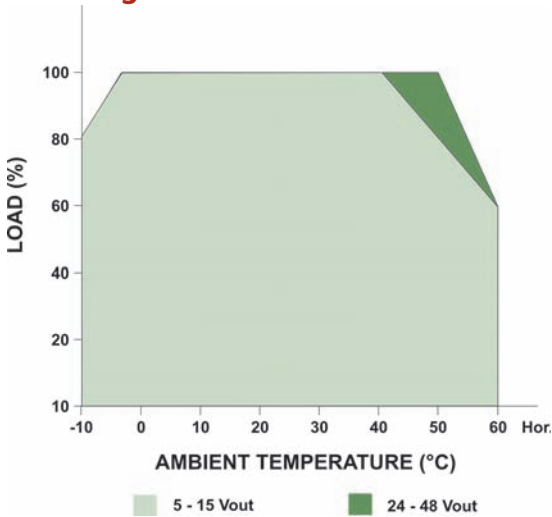
## Mechanical Dimensions



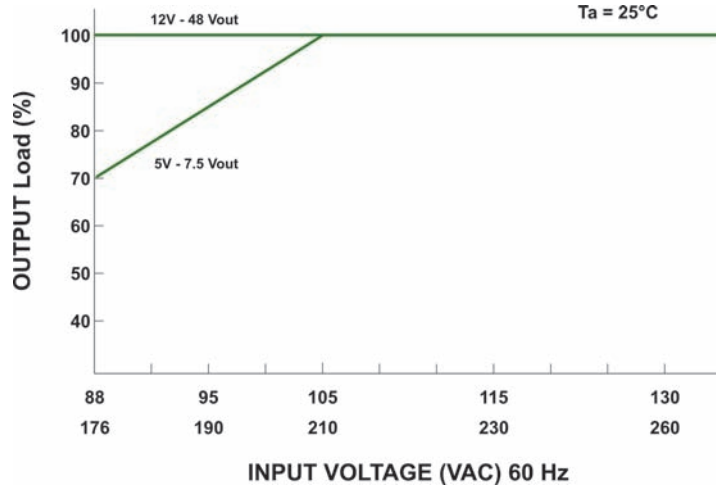
## Pin Connections

| Pin | Function   |
|-----|------------|
| 1   | AC-Line    |
| 2   | AC-Neutral |
| 3   | AC-Ground  |
| 4   | -Vout      |
| 5   | -Vout      |
| 6   | -Vout      |
| 7   | +Vout      |
| 8   | +Vout      |
| 9   | +Vout      |

## Derating Curve



## Static Characteristics



**Notes:**

- All dimensions are typical in inches (mm)
- Tolerance x.xx = ±0.01 (±0.25)



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