



## MAP80 SERIES

Power-One's MAP80 series of power supplies provides reliable, tightly regulated DC power for commercial and industrial systems which require high peak current capabilities. Wide-range AC input and full international safety, EMI, and ESD compliance ensure world-wide acceptance. All units bear the CE Mark.

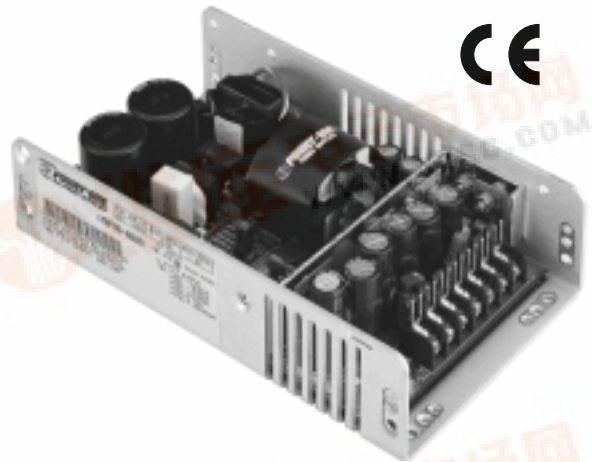
The MAP80 utilizes a variable frequency design with a thermally efficient U-channel chassis to provide full power operation in

convection cooled applications. Design innovations include metric and SAE mounting inserts on each mounting surface to provide integration flexibility. Dual-mode connectors provide traditional terminal block connections or popular single row Molex connector mating.

Single output models feature wide-range output adjustability to meet a wide variety of standard and user specific output voltage requirements.

### FEATURES

- Wide Range Input for 110/220 VAC Applications
- CE Marked to Low Voltage Directive
- Input Transient & ESD Compliance to EN61000-4-2/-3/-4
- Meets EN55022, Class B Limits
- TTL Compatible Power Fail Signal
- Compact Footprint: 7.20" x 4.20" x 1.80" (182.9mm x 106.7mm x 45.7mm)
- Greater than 175,000 Hours MTBF
- Metric and SAE Mounting Inserts



### SINGLE OUTPUT MODEL SELECTION CHART

| MODEL      | OUTPUT VOLTAGE | ADJUSTMENT RANGE | MAXIMUM OUTPUT CURRENT | PEAK OUTPUT CURRENT (NOTE 3) | LINE REGULATION | LOAD REGULATION | RIPPLE & NOISE %p-p (NOTE 1) | INITIAL SETTING ACCURACY |
|------------|----------------|------------------|------------------------|------------------------------|-----------------|-----------------|------------------------------|--------------------------|
| MAP80-1005 | 5V             | 4.5V to 5.6V     | 16A                    | 18A                          | 0.2%            | 1%              | 1.4%                         | 5.0V to 5.1V             |
| MAP80-1012 | 12V/15V        | 11.5V to 15.5V   | 7.5/6A (Note 2)        | 9.2/7.3A (Note 2)            | 0.2%            | ±1%             | 1%                           | 11.76V to 12.15V         |
| MAP80-1024 | 24V/28V        | 23.0V to 29.0V   | 3.8/3.2A (Note 2)      | 4.6/3.9A (Note 2)            | 0.1%            | 0.5%            | 0.5%                         | 23.8V to 24.2V           |

NOTES: 1) Maximum peak to peak noise expressed as a percentage of output voltage, 20MHz bandwidth.  
 2) MAP80-1012 output currents are expressed as 12V/15V operation. MAP80-1024 output currents are expressed as 24V/28V operation.  
 3) Peak load for 60 seconds or less are acceptable, 10% duty cycle, maximum.

### MULTIPLE OUTPUT MODEL SELECTION CHART – 80W CONTINUOUS OUTPUT POWER

| MODEL      | OUTPUT VOLTAGE | ADJUSTMENT RANGE | OUTPUT CURRENT | PEAK OUTPUT CURRENT (NOTE 1) | LINE REGULATION | LOAD REGULATION | RIPPLE & NOISE %p-p (NOTE 2) | INITIAL SETTING ACCURACY |
|------------|----------------|------------------|----------------|------------------------------|-----------------|-----------------|------------------------------|--------------------------|
| MAP80-4000 | +5V            | 4.8V to 5.5V     | 14A            | 16A                          | 0.2%            | 1%              | 1%                           | 5.1V to 5.2V             |
|            | +12V           | 11.52V to 12.48V | 4A             | 7A                           | 0.2%            | 1%              | 1%                           | 11.9V to 12.1V           |
|            | -5V            | Fixed            | 1A             | 1A                           | 0.5%            | 2%              | 1%                           | -4.8V to -5.4V           |
|            | -12V           | Fixed            | 1A             | 1A                           | 0.5%            | 2%              | 1%                           | -11.5V to -12.5V         |
| MAP80-4001 | +5V            | 4.8V to 5.5V     | 14A            | 16A                          | 0.2%            | 1%              | 1%                           | 5.1V to 5.2V             |
|            | +24V           | 23.04V to 24.96V | 2A             | 3.5A                         | 0.2%            | 1%              | 1%                           | 24.0V to 24.1V           |
|            | -12V           | Fixed            | 1A             | 1A                           | 0.5%            | 2%              | 1%                           | -11.5V to -12.5V         |
|            | +12V           | Fixed            | 1A             | 1A                           | 0.5%            | 2%              | 1%                           | 11.5V to 12.5V           |
| MAP80-4002 | +5V            | 4.7V to 5.5V     | 14A            | 16A                          | 0.2%            | 1%              | 1%                           | 5.1V to 5.2V             |
|            | +12V           | 11.52V to 12.48V | 4A             | 7A                           | 0.2%            | 1%              | 1%                           | 12.0V to 12.1V           |
|            | -12V           | Fixed            | 1A             | 1A                           | 0.5%            | 2%              | 1%                           | -11.6V to -12.4V         |
|            | +12V           | Fixed            | 1A             | 1A                           | 0.5%            | 2%              | 1%                           | 11.6V to 12.4V           |
| MAP80-4003 | +5V            | 4.8V to 5.5V     | 14A            | 16A                          | 0.2%            | 1%              | 1%                           | 5.1V to 5.2V             |
|            | +15V           | 14.40V to 15.60V | 3.5A           | 6A                           | 0.2%            | 1%              | 1%                           | 14.6V to 15.1V           |
|            | -5V            | Fixed            | 1A             | 1A                           | 0.5%            | 2%              | 1%                           | -4.8V to -5.4V           |
|            | -15V           | Fixed            | 1A             | 1A                           | 0.5%            | 2%              | 1%                           | -14.4V to -15.5V         |
|            | +5V            | 4.8V to 5.5V     | 14A            | 16A                          | 0.2%            | 1%              | 1%                           | 5.1V to 5.2V             |
|            | +24V           | 23.04V to 24.96V | 2A             | 3.5A                         | 0.2%            | 1%              | 1%                           | 24.0V to 24.1V           |
|            | -15V           | Fixed            | 1A             | 1A                           | 0.5%            | 2%              | 1%                           | -14.4V to -15.5V         |
|            | +15V           | Fixed            | 1A             | 1A                           | 0.5%            | 2%              | 1%                           | 14.4V to 15.5V           |



## MAP80 SERIES

### MULTIPLE OUTPUT MODEL SELECTION CHART (CONT.) – 80W CONTINUOUS OUTPUT POWER

| MODEL      | OUTPUT VOLTAGE | ADJUSTMENT RANGE | OUTPUT CURRENT | PEAK OUTPUT CURRENT (NOTE 1) | LINE REGULATION | LOAD REGULATION | RIPPLE & NOISE %p-p (NOTE 2) | INITIAL SETTING ACCURACY |
|------------|----------------|------------------|----------------|------------------------------|-----------------|-----------------|------------------------------|--------------------------|
| MAP80-4010 | +5V            | 4.8V to 5.5V     | 14A            | 16A                          | 0.2%            | 1%              | 1%                           | 5.1V to 5.2V             |
|            | +12V           | 11.52V to 12.48V | 4A             | 7A                           | 0.2%            | 1%              | 1%                           | 12.0V to 12.1V           |
|            | -5V            | Fixed            | 1A             | 1A                           | 0.5%            | 2%              | 1%                           | -4.8V to -5.4V           |
|            | -12V           | Fixed            | 3A             | 3A                           | 0.5%            | 2%              | 1%                           | -11.5V to -12.5V         |
| MAP80-4020 | +5V            | 4.8V to 5.5V     | 14A            | 16A                          | 0.2%            | 1%              | 1%                           | 5.1V to 5.2V             |
|            | +12V           | 11.52V to 12.48V | 4A             | 7A                           | 0.2%            | 1%              | 1%                           | 12.0V to 12.1V           |
|            | -12V           | Fixed            | 1A             | 1A                           | 0.5%            | 2%              | 1%                           | -11.5V to -12.5V         |
|            | -5V            | Fixed            | 3A             | 3A                           | 0.5%            | 2%              | 1%                           | -4.8V to -5.4V           |

**NOTES:** 1) Peak loads up to 90 Watts for 60 seconds or less are acceptable, (10% duty cycle max.). Peak power must not exceed 90 Watts.

2) Maximum peak to peak noise expressed as a percentage of output voltage, 20MHz bandwidth.

### INPUT SPECIFICATIONS

| PARAMETER            | CONDITIONS/DESCRIPTION                                                       | MIN       | NOM | MAX        | UNITS |
|----------------------|------------------------------------------------------------------------------|-----------|-----|------------|-------|
| Input Voltage - AC   | Continuous input range.                                                      | 90<br>175 |     | 135<br>264 | VAC   |
| Input Frequency      | AC input.                                                                    | 47        |     | 63         | Hz    |
| Brown Out Protection | Lowest AC input voltage that regulation is maintained with full rated loads. | 90        |     |            | VAC   |
| Hold-up Time         | Nominal AC input voltage (115VAC), full rated load.                          | 20        |     |            | mS    |
| Input Current        | 90 VAC (80W load).<br>110VAC (80W load).                                     |           |     | 2.5<br>2.8 | ARMS  |
| Input Protection     | Non-user serviceable internally located AC input line fuse.                  |           |     |            |       |
| Inrush Surge Current | Internally limited by thermistor. Vin = 264VAC (one cycle). 25° C.           |           |     | 45         | APK   |
| Operating Frequency  | Switching frequency of power supply (varies with load).                      | 22        |     | 120        | kHz   |

### OUTPUT SPECIFICATIONS

| PARAMETER              | CONDITIONS/DESCRIPTION                                                                                                                                | MIN                  | NOM | MAX      | UNITS                      |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----|----------|----------------------------|
| Efficiency             | Full load, 115VAC. Varies with distribution of loads among outputs.                                                                                   | 73                   | 75  | 80       | %                          |
| Minimum Loads          | MAP80-1012<br>MAP80-1024<br>MAP80-1005 and all multiple output models, main channel only.                                                             | 0.42<br>0.21<br>1.00 |     |          | Amps                       |
| Ripple and Noise       | Full load, 20MHz bandwidth.                                                                                                                           |                      |     |          | See Model Selection Chart. |
| Output Power           | Continuous output power, all multiple output models.<br>Peak output power (60s maximum, 10% duty cycle), all multiple output models.                  |                      |     | 80<br>90 | Watts<br>Watts             |
| Overshoot / Undershoot | Output voltage overshoot/undershoot at turn-on, V1, V2.                                                                                               |                      |     | 1        | %                          |
| Regulation             | Varies by output. Total regulation includes: line changes from 90-132 VAC or 175-264, changes in load starting at 20% load and changing to 100% load. |                      |     |          | See Model Selection Chart. |
| Transient Response     | Recovery time, to within 1% of initial set point due to a 50-100% load change, 4% max. deviation. (Main output of multiple output units).             |                      |     | 500      | µS                         |
| Turn-On Delay          | Time required for initial output voltage stabilization.                                                                                               | 1                    |     | 5        | Sec                        |
| Turn-on Rise Time      | Time required for output voltage to rise from 10% to 90%.                                                                                             |                      |     | 20       | mS                         |

### INTERFACE SIGNALS AND INTERNAL PROTECTION

| PARAMETER                   | CONDITIONS/DESCRIPTION                                                                                            | MIN | NOM | MAX | UNITS |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-------|
| Overvoltage Protection      | Provided on MAP80-1005 and the main output of multiple output units.                                              | 5.5 |     | 6.8 |       |
|                             | MAP80-1012                                                                                                        | 17  |     | 23  | V     |
|                             | MAP80-1024                                                                                                        | 32  |     | 37  |       |
| Overload Protection         | Fully protected against output overload and short circuit. Automatic recovery upon removal of overload condition. |     |     |     |       |
| Power Fail Warning (Note 1) | TTL compatible logic signal. Time before regulation dropout due to loss of input power at 110VAC.                 | 4   |     |     | mS    |

**NOTES:** 1) Power Fail Warning is not available on MAP80-1024. The MAP80-1012 is an open collector output, capable of sinking 35 mA, maximum.

## MAP80 SERIES

### SAFETY, REGULATORY, AND EMI SPECIFICATIONS

| PARAMETER                               | CONDITIONS/DESCRIPTION                                                                                                       | MIN                            | NOM      | MAX | UNITS |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------|-----|-------|
| Agency Approvals                        | UL1950.<br>CSA 22.2 No. 234/950.<br>EN60950 (TUV).                                                                           |                                | Approved |     |       |
| Dielectric Withstand Voltage            | Input to output.                                                                                                             | 2600                           |          |     | VDC   |
| Electromagnetic Interference, Conducted | FCC CFR title 47 part 15 sub-part B - conducted & radiated.<br>EN55022 / CISPR 22 conducted.<br>EN55022 / CISPR 22 radiated. | B<br>B<br>B                    |          |     | Class |
| Input Transient Protection              | EN61000-4-5 level 3.                                                                                                         | Line to line<br>Line to ground | 1<br>2   |     | kV    |
| Insulation Resistance                   | Input to output.                                                                                                             | 7                              |          |     | MΩ    |
| Leakage Current                         | Per EN60950, 264VAC.                                                                                                         |                                |          | 500 | μA    |

### ENVIRONMENTAL SPECIFICATIONS

| PARAMETER               | CONDITIONS/DESCRIPTION                                                         | MIN                           | NOM    | MAX        | UNITS              |
|-------------------------|--------------------------------------------------------------------------------|-------------------------------|--------|------------|--------------------|
| Altitude                | Operating.<br>Non-operating.                                                   |                               |        | 10k<br>40k | ASL Ft.<br>ASL Ft. |
| Operating Temperature   | Derate linearly above 50°C by 2.5% per °C<br>to a maximum temperature of 70°C. | At 100% load:<br>At 50% load: | 0<br>0 | 50<br>70   | °C<br>°C           |
| Storage Temperature     |                                                                                | -55                           |        | 85         | °C                 |
| Temperature Coefficient | 0°C to 70°C (After 15 minute warm-up).                                         |                               | ±0.02  | ±0.03      | %/°C               |
| Relative Humidity       | Non-condensing.                                                                | 5                             |        | 95         | %RH                |
| Shock                   | Operating, peak acceleration.                                                  |                               |        | 20         | G                  |
| Vibration               | Random vibration, 10Hz to 2kHz, 3 axis.                                        |                               |        | 6          | GRMS               |

### OPTIONS

| DESCRIPTION | NOTES                                                                                                                                                                                                                                        | SIZE IMPACT                                           |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| Cover       | Add 'C' suffix to model number or order part number 412-59585 separately.<br>For convection cooled applications, derate output power to 65 watts on all multiple output models and MAP80-1005. Derate MAP80-1012 and MAP80-1024 to 75 watts. | 7.20" x 4.20" x 2.05"<br>(183.0mm x 107.0mm x 52.0mm) |

**For the Most Up-To-Date Information**

**[www.power-one.com](http://www.power-one.com)**

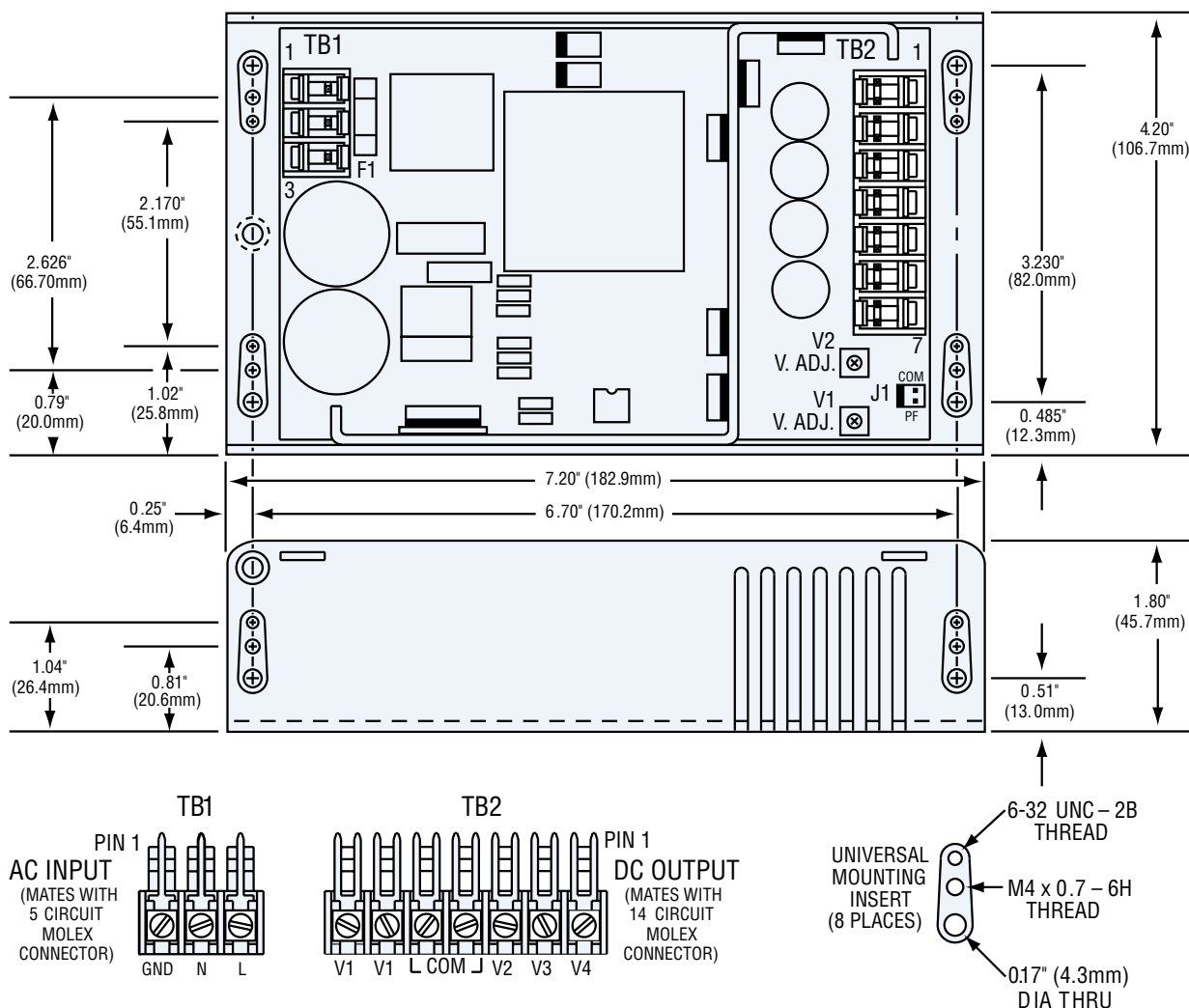
**24 Hours/Day—7 Days/Week**



## MAP80 SERIES

**OVERALL SIZE: 7.20" x 4.20" x 1.80" (182.9mm x 106.7mm x 45.7mm)**

**WEIGHT: 1.8 LBS (0.82 kg)**



**INPUT & OUTPUT CONNECTIONS:** 6-32 SCREW WIRE CLAMPS ON 0.312" (7.9mm) CENTERS, 0.045" (1.1mm) SQUARE PINS ON 0.156" (3.9mm) CENTERS, MATES WITH MOLEX SERIES 2139, 6442, OR 41695

**POWER FAIL CONNECTIONS:** J1: 0.035" (0.9mm) SQUARE PINS ON 0.100" (2.5mm) CENTERS, MATES WITH MOLEX SERIES 2695/6471

**CHASSIS:** 0.090" (2.3mm) ALUMINUM ALLOY, WITH CLEAR FINISH