



Features

- RoHS lead-solder-exemption compliant
- Universal input 85-264 VAC
- CE marked to Low Voltage Directive
- Input transient & ESD compliance to EN61000-4-2/-3/-4
- Meets EN55022 conducted and radiated limits
- Greater than 311,000 Hours MTBF
- Remote sense (MAP30, MAP42)

Description

Power-One's MAP30/40/42 Series of power supplies combines low cost and universal input in a board-only power solution to meet commercial and industrial requirements. Full international safety, EMI, and ESD compliance ensure worldwide acceptance. All units bear the CE Mark.

Fixed frequency operation simplifies system level operation. The MAP30/40/42 Series is configured to the international standard 3.00" x 5.00" footprint. Input and output connections are made via popular single-row Molex connectors.

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

Single-Output Model Selection

| MODEL | OUTPUT VOLTAGE | ADJUSTMENT RANGE | MAXIMUM OUTPUT CURRENT | PEAK OUTPUT CURRENT (NOTE 2) | LINE REGULATION | LOAD REGULATION | RIPPLE & NOISE %p-p (NOTE 1) | INITIAL SETTING ACCURACY |
|------------|----------------|------------------|------------------------|------------------------------|-----------------|-----------------|------------------------------|--------------------------|
| MAP30-1005 | 5V | 4.7V to 5.8V | 6A | 8A | 0.2% | ±1% | 1% | 4.9V to 5.1V |
| MAP42-1005 | 5V | 4.7V to 5.8V | 8A | 11A | 0.2% | ±1% | 1% | 4.9V to 5.1V |
| MAP42-1012 | 12V/15V | 11.0V to 18.0V | 3.4/2.7A (Note 3) | 4.6/3.7A (Note 3) | 0.2% | 1% | 1% | 11.9V to 12.1V |
| MAP42-1024 | 24V/28V | 23.0V to 29.0V | 1.7/1.4A (Note 3) | 2.3/1.9A (Note 3) | 0.2% | 1% | 1% | 23.8V to 24.2V |

NOTES: 1) Maximum peak to peak noise expressed as a percentage of output voltage, 20 MHz bandwidth.
 2) Peak ratings may be used as maximum output current with 100 Linear Feet per Minute (LFM) forced air cooling.
 3) MAP42-1012 output currents are expressed as 12V/15V operation. MAP42-1024 output currents are expressed as 24V/28V operation.

Multiple-Output Model Selection – 40W 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 |
|------------|----------------|------------------|----------------|------------------------------|-----------------|-----------------|------------------------------|--------------------------|
| MAP40-3000 | +5V | 4.75V to 5.50V | 3A | 5A | 0.2% | 2% | 1% | 4.9V to 5.1V |
| | +12V | Fixed | 2A | 3.5A | 1% | 3.5% (Note 3) | 1% | 11.5V to 12.5V |
| | -12V | Fixed | 0.3A | 0.5A | 1% | 2% (Note 4) | 1% | -11.4V to -12.6V |
| MAP40-3100 | +5V | 4.75V to 5.25V | 3A | 5A | 0.2% | 2% | 1% | 4.9V to 5.1V |
| | +12V | Fixed | 2A | 3.5A | 1% | 3.5% (Note 3) | 1% | 11.5V to 12.5V |
| | -12V | Fixed | 0.3A | 0.5A | 1% | 2% | 1% | -11.4V to -12.6V |
| MAP40-3101 | +5V | 4.75V to 5.25V | 3A | 5A | 0.2% | 2% | 1% | 4.9V to 5.1V |
| | +24V | Fixed | 1A | 1.5A | 1% | 3.5% (Note 3) | 1% | 23.0V to 25.0V |
| | -12V | Fixed | 0.3A | 0.5A | 1% | 2% | 1% | -11.5V to -12.5V |
| MAP40-3105 | +5V | 4.7V to 5.8V | 3A | 5A | 0.2% | 2% | 1% | 4.9V to 5.1V |
| | +12 | Fixed | 2A | 3.5A | 1% | 3.5% (Note 3) | 1% | 11.5V to 12.5V |
| | -5V | Fixed | 0.5A | 1.0A | 1% | 2% | 1% | -4.75V to -5.25V |
| MAP40-3500 | +5V | 4.7V to 5.8V | 5A | 6A | 0.2% | 2% | 1% | 4.9V to 5.1V |
| | +12V | Fixed | 1A | 3.5A | 1% | 3.5% (Note 3) | 1% | 11.5V to 12.5V |
| | -12V | Fixed | 0.3A | 0.5A | 1% | 2% | 1% | -11.4V to -12.6V |
| MAP40-3003 | +5V | 4.7V to 5.8V | 3A | 5A | 0.2% | 2% | 1% | 4.9V to 5.1V |
| | +15V | Fixed | 1.5A | 3A | 1% | 3.5% (Note 3) | 1% | 14.7V to 15.3V |
| | -15V | Fixed | 0.2A | 0.5A | 1% | 2% (Note 4) | 1% | -14.3V to -15.7V |

NOTES : 1) Peak loads for 30 seconds or less are acceptable, (10% duty cycle max.).
 2) Maximum peak-to-peak noise expressed as a percentage of output voltage, 20 MHz bandwidth.
 3) Quasi regulated output. See Regulation Curves for more information.
 4) Requires a minimum load of 0.5A on V1 or 0.3A on V2.

Model numbers highlighted in yellow or shaded are not recommended for new designs.

Input Specifications

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|----------------------|--|--------------|-----|-----|-------|
| Input Voltage - AC | Continuous input range. | MAP42 | 85 | 264 | VAC |
| | | MAP30, MAP40 | 90 | 264 | |
| Input Frequency | AC input. | 47 | | 63 | Hz |
| Brown Out Protection | Lowest AC input voltage that regulation is maintained with full rated loads. | 85 | | | VAC |
| Hold-up Time | Nominal AC Input Voltage (115VAC), full rated load. | 15 | | | ms |
| Input Current | 90 VAC (40W load). | | | 1.2 | 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. | | | 38 | APK |
| Operating Frequency | Switching frequency of power supply (fixed frequency). | 23 | 25 | 30 | kHz |

Output Specifications

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|------------------------|---|-----|-----|-----|----------------------------|
| Efficiency | Full load, 120VAC. | | 70 | | % |
| Minimum Loads | Single output models; MAP30, MAP42. All multiple output models, see regulation graphs. | 0.0 | | | Amps |
| Ripple and Noise | Full load, 20 MHz bandwidth. | | | | See Model Selection Chart. |
| Output Power | Multiple output models with convection cooling. | | | 40 | Watts |
| Overshoot / Undershoot | Output voltage overshoot/undershoot at turn-on, V1. | | | 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 regulation graphs. |
| Transient Response | Recovery time, to within 1% of initial set point due to a 50-100% load change, 4% max. deviation. (Main output only of multiple output units). | | 500 | | µs |
| Turn-on Delay | Time required for initial output voltage stabilization. | | 1 | 2 | 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 | Main output only of multiple output units. | MAP30-1005, MAP42-1005 | 5.8 | 6.8 | V |
| | | MAP42-1012 | 20.0 | 22.0 | |
| | | MAP42-1024 | 32.0 | 37.0 | |
| | | | 5.8 | 6.8 | |
| Overload Protection | Fully protected against output overload and short circuit. Automatic recovery upon removal of overload condition. | | 130 | | % |
| Remote Sense | Total cable drop, single output models only. | | | 250 | mV |

Safety, Regulatory, and EMI Specifications

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|------------------------------|---|-------------------------------------|-------------|-----------|-------|
| Agency Approvals | UL60950. CSA 22.2 No. 60950. EN60950 (TUV). | | | Approved. | |
| Dielectric Withstand Voltage | Input to output. | 2600 | | | VDC |
| Electromagnetic Interference | FCC CFR title 47 part 15 sub-part B - conducted. EN55022 / CISPR 22 conducted (Note 1). EN55022 / CISPR 22 radiated (Note 2). | | B B B | | Class |
| Input Transient Protection | EN61000-4-5 Level 3 | Line to Line | 1 | | kV |
| | | Line to Ground | 2 | | |
| Insulation Resistance | Input to output. | 7 | | | MΩ |
| Leakage Current | Per EN60950, 264VAC | MAP42, MAP40-3100, 3001, 3105, 3500 | | 500 | µA |
| | | MAP30-1005, MAP40-3000, MAP40-3003 | | 750 | |

NOTES: 1) MAP30-1005, MAP40-3000, MAP40-3003 meet Class A.
2) MAP40-3000, MAP40-3003, MAP3500 meet Class A.

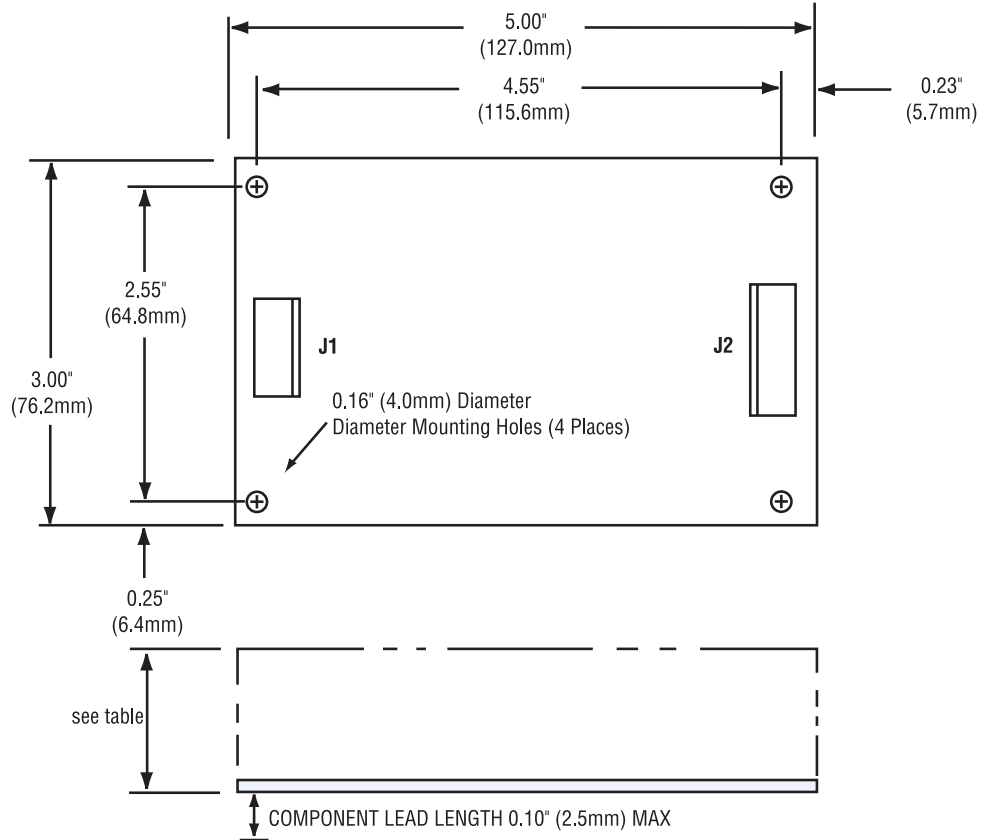
Environmental Specifications

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|-------------------------|---|---------------|-------|-------|---------|
| Altitude | Operating. | | | 10k | ASL Ft. |
| | Non-operating. | | | 40k | ASL Ft. |
| Operating Temperature | Derate linearly above 50°C by 2.5% per °C to a maximum temperature of 70°C. | At 100% load: | 0 | 50 | °C |
| | | At 50% load: | 0 | 70 | °C |
| Storage Temperature | | -40 | | 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 |

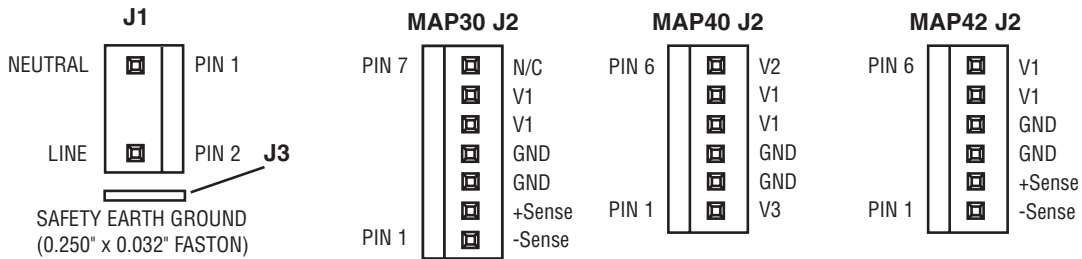
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TECHNICAL REVISIONS - The appearance of products, including safety agency certifications pictured on labels, may change depending on the date manufactured. Specifications are subject to change without notice.

OVERALL SIZE: 5.00" x 3.00" x (see table) (127.0mm x 76.2mm x see table)
WEIGHT: 0.6 lb (0.26 kg)



ELECTRICAL CONNECTORS



J1/J2 MATES WITH MOLEX (SERIES 2139 or SERIES 41695) .156" (4mm) CENTER CRIMP TERMINAL HOUSING OR EQUIVALENT

MAP30/40/42 SERIES HEIGHT

| Single Output Models | | Multiple Output Models | |
|----------------------|--------------|------------------------|--------------|
| Model | Height | Model | Height |
| MAP30-1005 | 1.16" (29.5) | MAP40-3000 | 1.16" (29.5) |
| MAP42-1005 | 1.25" (31.8) | MAP40-3003 | 1.16" (29.5) |
| MAP42-1012 | 1.25" (31.8) | MAP40-3100 | 1.25" (31.8) |
| MAP42-1024 | 1.25" (31.8) | MAP40-3101 | 1.25" (31.8) |
| | | MAP40-3105 | 1.25" (31.8) |
| | | MAP40-3500 | 1.60" (40.6) |