RoHS Compliant

Features

- RoHS lead-solder-exemption compliant
- Universal input 85-264 VAC
- Input transient & ESD compliance to EN61000-4-2/-3/-4
- CE marked to Low Voltage Directive
- Industry-standard footprint: 7.00" x 4.30" x 1.80" (177.8mm x 109.2mm x 45.7mm)
- Remote sense and overvoltage protection
- Power Fail signal standard on MAP140-3000P, optional on MAP140-1012 and MAP140-1024
- Optional overtemperature protection, L-bracket, and cover

Description

Power-One's MAP140 Series provides a full range of options and up to 30 watts more power than comparable products in this industry-standard footprint. With a universal input from 85 to 264 VAC and power densities up to 2.6 watts/inch3, the MAP140 meets the most rigorous requirements of commercial, industrial, and datacom systems.

Rated for use in convection and forced-air cooled (200 LFM) applications, the MAP140 delivers dependable power with a Mean Time Between Failures (MTBF) in excess of 180,000 hours. In addition to UL, CSA, and TÜV regulatory compliance, the MAP140 displays the CE Mark.

Single Output Model Selection

MODEL	OUTPUT VOLTAGE	ADJUSTMENT RANGE	CONVECTION COOLED CURRENT	FORCED AIR CURRENT (NOTE 3)	LINE REGULATION	LOAD REGULATION	RIPPLE & NOISE %p-p (NOTE 1)	INITIAL SETTING ACCURACY
MAP140-1012	12V/15V	11.0V to 16.0V	9.2/7.3A (Note 2)	12.5A/10A (Note 2)	0.1%	0.5%	1%	11.97V to 12.03V
MAP140-1024	24V/28V	22.8V to 29.2V	4.6/4A (Note 2)	6.3A/5.4A (Note 2)	0.1%	0.5%	1%	23.95V to 24.05V
MAP140-1048	48V	45.6V to 54.0V	2.3A	3.1A	0.1%	0.5%	1%	47.9V to 48.1V

NOTES: 1) Maximum peak to peak noise expressed as a percentage of output voltage, 20MHz bandwidth.
2) MAP140-1012 output currents are expressed as 12V/15V operation. MAP140-1024 output currents are expressed as 24V/28V operation.
3) With 200 LFM forced air cooling.

Multiple Output Model Selection

80W Convection Cooled, 140W Forced-Air Cooled (200 LFM)

MODEL	OUTPUT VOLTAGE	ADJUSTMENT RANGE	OUTPUT CURRENT (NOTE 1)	PEAK OUTPUT CURRENT (NOTE 1)	LINE REGULATION	LOAD REGULATION	RIPPLE & NOISE %p-p (NOTE 2)	INITIAL SETTING ACCURACY
	+5V	4.75 - 5.25V	16A/25A	20A/25A PK	0.2%	1%	1%	5.09V to 5.11V
MAP140-3000P	+12V	Fixed	4A/9A PK	4A/9A PK	0.1%	2%	1%	11.97V to 12.03V
	-12V	Fixed	1A/1.5A PK	1A/1.5A PK	0.1%	2%	1%	-11.4V to -12.6V

NOTES: 1) Peak loads up to 140 Watts for 60 seconds or less are acceptable, (10% duty cycle max.). Peak power must not exceed 140 watts.
2) Maximum peak to peak noise expressed as a percentage of output voltage, 20MHz bandwidth.

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.		85		264	VAC
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 (110 VAC)	110 watt load: 140 watt load:	20 16			mS
Input Current	85 VAC (140W load). 110 VAC (140W load).				2.5 2.0	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.				41	APK
Operating Frequency	Switching frequency of main transformer.			22		kHz

Output Specifications

PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Efficiency	Full load, 110 VAC. Varies with distribution of loads among outputs.		65	70	80	%
Minimum Loads	Single output models. MAP140-3000P, total output current of V1 + V2 (Note 1).		0 2			Amps
Ripple and Noise	Full load, 20MHz bandwidth.			See Model Selection Chart.		
Output Power	Single output models. MAP140-3000P with convection cooling. MAP140-3000P with 200 LFM forced air cooling.			See Model Selection Chart.	80 140	Watts
Overshoot / Undershoot	Output voltage overshoot/undershoot at turn-on/turn-off.				0	V
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.			500		µS
Turn-on Delay	Time required for initial output voltage stabilization.	MAP140-3000P Single output models			1 2	Sec
Turn-on Rise Time	Time required for output voltage to rise from 10% to 90%.				20	mS

NOTES: 1) Minimum load is required only to meet the regulation limits of V3.

Interface Signals and Internal Protection

PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Overvoltage Protection	Provided on single output models and V1 of MAP140-3000P.	MAP140-3000P, V1 MAP140-1012 MAP140-1024 MAP140-1048	6.1 17.3 32.2 55.2		7.2 20.2 37.8 64.8	V
Overload Protection	Fully protected against output overload and short circuit. Automatic recovery upon removal of overload condition.					
Remote Sense	Voltage drop compensated for at the load.				250	mV
Input Power Fail Warning	TTL compatible logic signal. Time before regulation dropout due to loss of input power at 140 watts, 110 VAC. Standard on MAP140-3000P and optional on MAP140-1012.		2.3			mS
Overtemperature Protection	Optional signal provides system shutdown due to excessive internal temperature. See options.					

Safety, Regulatory, and EMI Specifications

PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Agency Approvals	UL1950. CSA 22.2 No. 234/950. EN60950 (TÜV).			Approved		
Dielectric Withstand Voltage	Input to output, 1 second.		2600			VDC
Electromagnetic Interference, Conducted	FCC CFR title 47 part 15 sub-part B - conducted & radiated. EN55022 / CISPR 22 conducted.		B B			Class
ESD Susceptibility	Per EN61000-4-2, level 4.		8			kV
Radiated Susceptibility	Per EN61000-4-3, level 3.		10			V/M
EFT/Burst	Per EN61000-4-4, level 3.		±2			kV
Input Transient Protection	Per EN61000-4-5, class 3.	Line to Line Line to Ground	1 2			kV
Insulation Resistance	Input to Output.		10			MΩ
Leakage Current	Per EN60950, 264VAC.	110 VAC 264 VAC			0.5 1.5	mA

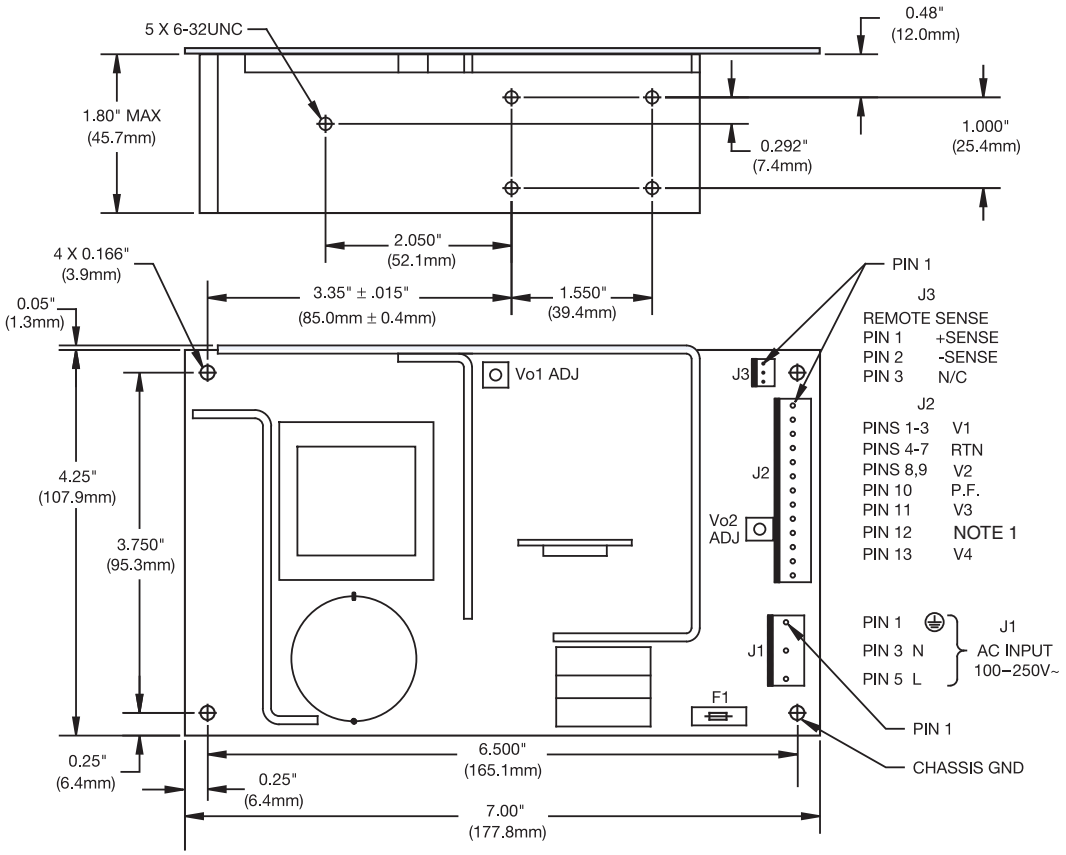
Environmental Specifications

PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Altitude	Operating. Non-operating.				10k 40k	ASL Ft. ASL Ft.
Operating Temperature	Derate linearly above 50°C by 2.5% per °C	At 100% load: At 50% load:	0 0		50 70	°C °C
Storage Temperature			-40		85	°C
Temperature Coefficient	0°C to 70°C (after 15 minute warm-up period).			±0.02	±0.05	%/°C
Relative Humidity	Non-condensing.				95	%RH
Shock	Operating, peak acceleration.				20	GPK
Vibration	Random vibration, 10Hz to 2kHz, 3 axis.				6	GRMS

Options

DESCRIPTION	NOTES	DIMENSIONS
L-Bracket	Add 'L' suffix to model number.	7.19" x 4.50" x 2.40" (182.6mm x 114.3mm x 61.0mm)
Cover	Add 'C' suffix to model number. Includes L-Bracket. For convection cooled applications, derate output power to 75 watts, maximum.	7.19" x 4.50" x 2.40" (182.6mm x 114.3mm x 61.0mm)
Power Fail Signal	Add 'P' suffix to model number. Provides 2.3mS warning time before main output drops 5%. Warning time increases at reduced load levels. Option available only on MAP140-1012 and MAP140-1024. Power fail is standard on MAP140-3000P.	N/A
Thermal Shutdown	Add 'T' suffix to model number. Initiates shut-down in the event of an overtemperature condition. Automatic recovery. Where available, Power Fail signal is initiated prior to shutdown.	N/A

OVERALL SIZE: 7.00" X 4.30" X 1.97" (177.8mm x 109.2mm x 50.0mm)
OVERALL WEIGHT: 1.3 lb (0.59 kg)



MOLEX PCB PIN CONNECTOR INFORMATION				
REF DESIG	SERIES	MOLEX P/N	SPACING	PINS, SQUARE
J1	41671 or	26-48-1055*	0.156 (3.96)	0.045 (1.14)
	41791	26-60-4050*	0.156 (3.96)	0.045 (1.14)
J2	41671 or	26-48-1135	0.156 (3.96)	0.045 (1.14)
	41791	26-60-4130	0.156 (3.96)	0.045 (1.14)
J3	6373	22-23-2031	0.100 (2.54)	0.025 (0.64)

*With pins 2 & 4 removed for double spacing.

NOTES:

1.) When the V4 output is a positive (+) output, pin 12 on J2 is connected to RTN.

When the V4 output is a negative (–) output, pin 12 on J2 is connected to V4.

Contact factory for dimensions for L-bracket and cover.