

Features

- RoHS lead-solder-exempt compliant
- 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
- Greater than 175,000 Hours MTBF
- Metric and SAE mounting inserts

Description

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 worldwide 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.

Single Output Model Selection

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 – 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
MAP80-4004	+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

Multiple Output Model Selection (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.	90 175		135 264	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). 110VAC (80W load).			2.5 1.8	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 MAP80-1024 MAP80-1005 and all multiple output models, main channel only.	0.42 0.21 1.00			Amps
Ripple and Noise	Full load, 20MHz bandwidth.			See Model Selection Chart.	
Output Power	Continuous output power, all multiple output models. Peak output power (60s maximum, 10% duty cycle), all multiple output models.			80 90	Watts 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.

Safety, Regulatory, and EMI Specifications

PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Agency Approvals	UL1950. CSA 22.2 No. 234/950. 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. EN55022 / CISPR 22 conducted. EN55022 / CISPR 22 radiated.		B B B			Class
Input Transient Protection	EN61000-4-5 level 3.	Line to line Line to ground	1	2		kV
Insulation Resistance	Input to output.		7			MΩ
Leakage Current	Per EN60950, 264VAC.				500	µA

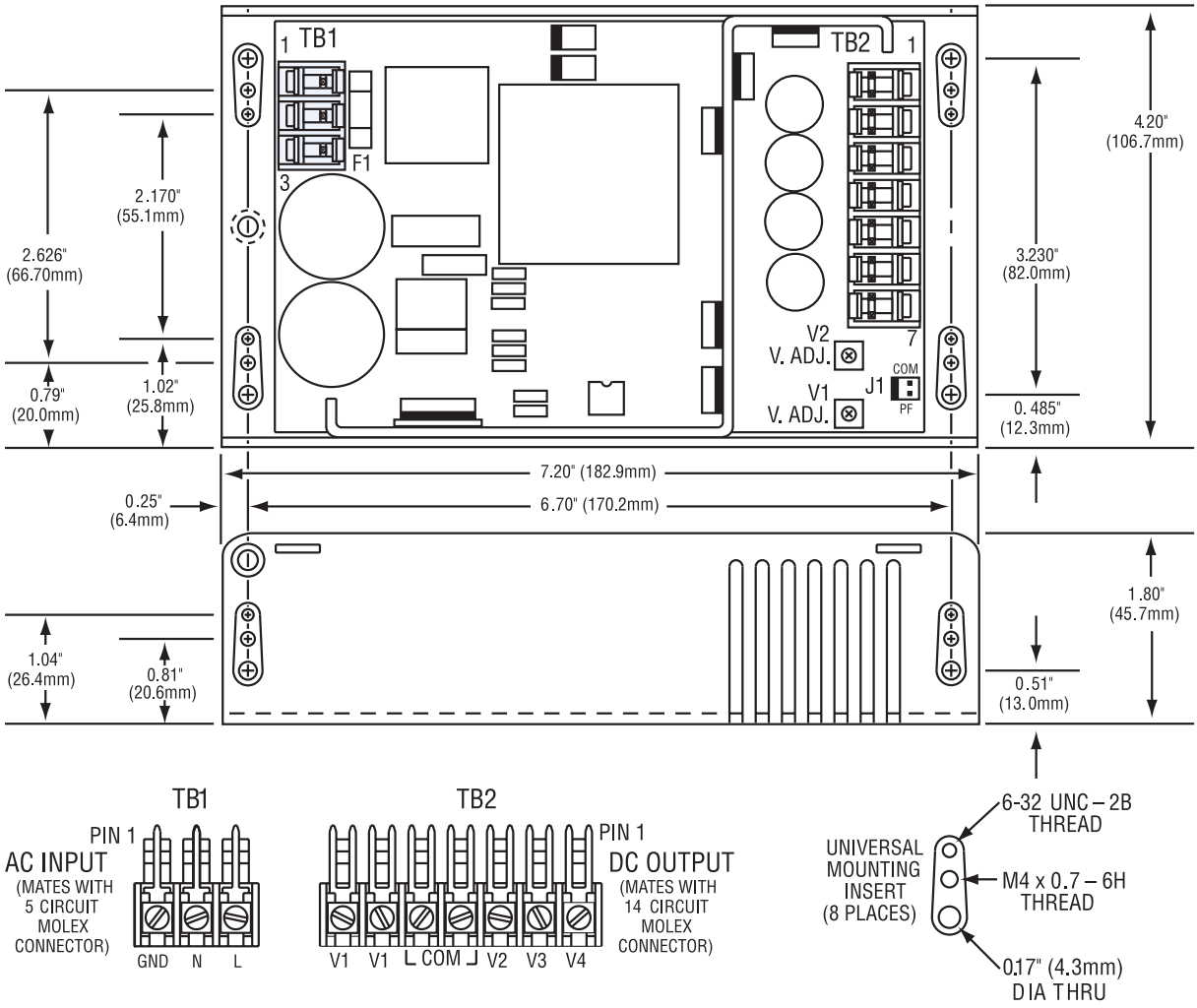
Environmental Specifications

PARAMETER	CONDITIONS/DESCRIPTION		MIN	NOM	MAX	UNITS
Altitude	Operating. Non-operating.				10k 40k	ASL Ft. ASL Ft.
Operating Temperature	Derate linearly above 50°C by 2.5% per °C to a maximum temperature of 70°C.	At 100% load: At 50% load:	0 0		50 70	°C °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-G separately. 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" (183.0mm x 107.0mm x 52.0mm)

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

NUCLEAR AND MEDICAL APPLICATIONS - Power-One products are not designed, intended for use in, or authorized for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems without the express written consent of the respective divisional president of Power-One, Inc.

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